

CIO

BUSINESS TECHNOLOGY LEADERSHIP

There's a lot more to virtualization than data center consolidation. Smart CIOs know it can be the killer app for IT-business alignment.

VIRTUAL POSSIBILITIES

BY THOMAS WAILGUM Page 34

HOW TO PITCH YOUR BUDGET

Tips for making your presentation more effective

Page 40

VIEW FROM THE TOP

One CEO's take on IT investment strategy

Page 46

Credit Suisse CIO
Tom Sanzone:
"Virtualization enables us to be faster to market. It's a game changer."



Your potential. Our passion.™
Microsoft

MICROSOFT SYSTEM CENTER. DESIGNED FOR BIG.

Microsoft® System Center is a family of IT management solutions (including Operations Manager and Systems Management Server) designed to help you manage your mission-critical enterprise systems and applications.

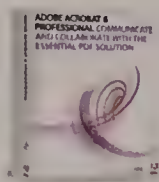
HSBC is deploying System Center solutions to manage 15,000 servers and 300,000 desktops worldwide. That's big. See HSBC and other case studies at DesignedForBig.com

Microsoft®
System Center



YOUR GOALS ARE ATTAINABLE. WE'VE DONE THE MATH.

For even your most ambitious IT endeavors, you can trust Insight to work out a solution. From software and hardware to onsite implementation services, we provide technology that's custom-fit to your needs. **Gain a trusted advisor. Gain Insight.**



Adobe Acrobat 8 Professional

22020403



- The essential PDF solution
- Create, combine, and control Adobe PDF documents
- Easy, more secure distribution, collaboration, and data collection



Symantec Backup Exec System

10848060



- System Recovery Server Edition - (v.6.5)
- Reduce Windows recovery time
- Remotely restore unattended servers in distributed locations



Fujitsu ScanSnap S500

PA03360-B505



- Color scanning of up to 18ppm/36ipm
- Auto page size and blank page detection

Free Rack2-File software rebate by mail-in rebate 4/17/07 - 6/30/07

Insight.
Technology
Solutions

insight.com ▼ 800.927.3209

contents

JULY 15, 2007 | VOL/20 | NO/19

Columns

26 | The ROI of Trust

THE CUSTOMER RELATIONSHIP Treat security and privacy spending not as something you have to do but as something you want to do. **By John C. Reece**

30 | When You're Onstage

CAREER CIOs—and the bosses who hire them—reveal what it takes to ace that critical job interview. **By Martha Heller**

50 | The Customer Is Your Business

STRATEGIC I.T. Best Buy's CIO explains why delivering value through IT depends upon anticipating—rather than responding to—customers' needs. **By Robert Willett**

more »

Tom Sanzone, CIO of Credit Suisse, says virtualization helped his IT department become the fast, flexible business partner the CEO wants.

34

34 | Virtual Possibilities

COVER STORY | VIRTUALIZATION Smart CIOs are using virtualization for much more than data center consolidation. They're becoming masters of flexibility—delivering results for the business like lightning-fast provisioning and greatly improved disaster recovery. **By Thomas Wailgum**

40 | The Buck Starts Here

ADVANCED COMMUNICATIONS What you say about your budget—and how you say it—sets the course for your IT department. Here's how to make your budget presentation more effective. **By Michael Fitzgerald**

46 | The Fabric of the Company

MID-MARKET | VIEW FROM THE TOP The textile manufacturing industry shipped out a generation ago. But a midsize North Carolina company uses IT to bring the profits of globalization home. **By C.G. Lynch**



6th Annual

DIGITAL ID WORLD

IDENTITY IS CENTER

September 24 - 26, 2007

Hilton San Francisco
San Francisco, CA

Walk away with more information, more perspective and more profiles of real world deployments by those who did them than at any other conference!

Interact with peers in over 40 hours of in-depth discussion providing you with perspective and analysis of how digital identity is being leveraged to help integrate, manage and secure the network. Sort the trends and discover the truth about what works and what doesn't.

Topics to include:

- Deploying identity-based network access control
- Using identity to achieve compliance
- Authentication as risk management
- How identity fits into SOA
- Understanding OpenID and CardSpace
- Achieving "anywhere access" with E-SSO
- Understanding successful federated identity deployments
- Role Management as the lynchpin of scaling identity
- Integrating machine identity into an identity architecture
- Addressing challenges in identity and the telco space
- Overcoming hurdles specific to identity and financial services
- Using identity to address healthcare specific concerns

Register now for the 6th annual **Digital ID World Conference** and take advantage of the early registration discount—reference **Priority Code AD** and attend the conference for \$995. This offer expires August 31.

Digital ID World. Real World Deployments. Real World Perspective.

Visit www.digitalidworld.com
or call 800-366-0246 to register.

Produced in conjunction with:

CSO The Resource for
Security Executives



CIO EXECUTIVE VIEWPOINT

How Strong Is Your Company's DNS Infrastructure?

Why Savvy CIOs Are Looking Long and Hard at DNS Services

Ben Petro, Senior Vice President, NeuStar Ultra Services

Ben Petro was appointed SVP following NeuStar's April 2006 acquisition of UltraDNS Corp., where he had been president and CEO since 2001. Petro grew UltraDNS into a global leader in managed DNS services. Previously, he was vice president of marketing at Edge Connections, where he created and implemented its national brand and deployed a strategy for its service offering. Petro has also held leadership positions at Logix Communications, MCI Communications and QSI.

DNS is critical to e-commerce and the successful operations of enterprises worldwide, and its importance is set to grow even further. The critical success factor for CIOs lies in recognizing just how significant DNS is to their business operations and develop an IT strategy to reflect this, says Ben Petro, senior vice president, Ultra Services at Sterling, Virginia-based NeuStar Inc. That means achieving unparalleled availability for public-facing e-commerce operations and greater manageability and cost reductions for internally focused business operations. Below, Petro explores the evolving role of managed services for DNS.

What key challenges do CIOs face today?

Today, CIOs face the challenge of managing the growth and complexity of IP-enabled devices. As recently as a decade ago, this was not a significant challenge

"IP objects are growing at a rate disproportionate to that of business, leaving IT organizations with a burden beyond their capabilities."

with a relatively static enterprise IT infrastructure. Today, we are experiencing an explosion in IP-enabled devices, with highly dynamic environments in which everyone carries Blackberries and mobile IP devices. And with the emergence of new technologies—such as VoIP and RFID—IP objects are growing at a rate disproportionate to that of business, leaving IT organizations with a burden beyond their current capabilities.

What is the significance of DNS today?

The contemporary Internet phenomenon

has dramatically affected organizations across the globe and ushered in an era of IP-based applications. DNS has become the critical directory infrastructure from an enterprise perspective, enabling and influencing business continuity, productivity and revenue. Email, Websites and business applications are only as reliable as the DNS infrastructure that supports them, which is now a top priority for every CIO.

How do DNS requirements differ between external and internal network environments?

Different organizations—such as Amazon and General Motors—have very different DNS requirements. Amazon's Web presence is its livelihood, but a glitch on GM.com, although it would have an impact on the brand, would not have a corollary impact on sales. However, internally, with disparate global operations, large enterprises face the challenge of managing hundreds of thousands of IP addresses and security components. The result is a wide spectrum of DNS requirements, ranging from heightened reliability and availability for public-facing e-commerce organizations to greater manageability and cost reduction for large internally focused enterprises.

Why do network-based managed DNS services represent a fundamentally different approach?

Traditionally, organizations grew into the Internet with a server at their core location and then expanded beyond local presence by buying colocation facilities. This meant spending millions of dollars in capital and operational expenditures in a never-ending quest to deliver the same level of service to all customers, regardless of geography. But when it comes to

management and availability, it's simply impossible to keep up with that level of scale. That's why organizations with the most-pronounced needs are choosing network-based managed DNS services. Providers such as NeuStar offer a global network and a full administrative tool-set—enabling organizations to manage the integrity of their DNS architecture, coupled with effective resource utilization, scalability and manageability benefits.

What role do directory-based services play in addressing future networking challenges?

Future challenges are already upon us. DNS is the underlying directory infrastructure for a host of new services, including VoIP and RFID. Although these services are currently seen as challenges for most organizations, CIOs are expecting huge benefits—most significantly with reductions in capital and operating expenditures. So, as the underpinning for such business potential, it is absolutely critical that DNS continues to become more secure, reliable and intelligent. That innovation is going to come from directory-based services.

For More Information: Check out this white paper, "Managing DNS Services for Greater Network Security and Availability", at www.cio.com/whitepapers/neustar.

NEUSTAR[®]
ULTRA[™] SERVICES



Custom Solutions Group

contents (Cont.)

In Every Issue

8 | From the Editor

Why has strategic execution remained a 25-year problem? **By Abbie Lundberg**

10 | From the CEO

When a crisis hits, the buck stops with the CIO. **By Michael Friedenberg**

13 | Trendlines

- ▶ Putting the business in BPM
- ▶ Microsoft's tabletop PC
- ▶ Plans for revamp of SEC Web data
- ▶ Pursuing a career in IT
- ▶ Power for a real worldwide Web
- ▶ Cities working on public Wi-Fi
- ▶ Captive offshoring disappoints

21 | Essential Technology

How can you stop enterprise e-mail management from gobbling large amounts of IT time and money? Outsource it, say a growing number of CIOs.

By Galen Gruman

54 | Index

56 | Five Things I've Learned

Alph Bingham, cofounder of InnoCentive, talks to *CIO* about the importance of collaboration—particularly outside your company's walls.



CIO Online

cio.com

[CIO IN THE REVIEWER'S CHAIR]

Desperately Seeking SUSE Linux

When last we left John Halamka, CIO of CareGroup, he was frustrated in his attempt to find a viable alternative to a Microsoft desktop (he yearned for a Dell laptop running OS X that wasn't available). Now Halamka has had a good test run of a Lenovo laptop running Novell's SUSE 10 version of Linux. He sees it as a consumer-friendly option, but does it offer everything a CIO needs for a wide deployment? Go to CIO.com to find out.

» www.cio.com/article/120452

[SECURE I.T.]

SECURITY SMARTS

After you read John Reece's essay on "The ROI of Trust," Page 26, go to CIO.com to check out our library of security-related articles, including analysis of Google desktop applications, how to conduct an investigation and minimizing the impact of laptop theft.

www.cio.com/topic/1419/security

[CIO ALERTS]

NEWS IN YOUR INBOX

We've expanded the list of newsletters that deliver the latest research and analysis pieces on IT management, strategy, technology trends, outsourcing and staffing, and our growing selection of how-to articles. Get these and more in your e-mail inbox. To see the entire list, visit:

www.cio.com/newsletters



[ADVICE & OPINION]

PARTICIPATE. ASK. OPINE. ONLINE.

Discussions on trends in IT management and deployment. Career questions and counseling. What your workers think. And more in *CIO*'s Advice & Opinion section. advice.cio.com

Right
now @
cio.com

- » **Hiring Manager Interview:** What Northern Trust's CTO seeks in job candidates
- » **You're the Boss:** A sprint for open-source developers
- » **Development:** The lost art of software engineering
- » **Movers and Shakers:** New CIOs at Discovery Communications, Rosetta Stone



BREAK THE CYCLE. The HP BladeSystem c-Class, featuring efficient Dual-Core AMD Opteron™ processors, helps free I.T. from the cycle of server management. It's equipped with HP's exclusive Insight Control Linux Edition, a comprehensive blade management and deployment package built specifically for Linux. Manage multiple servers and infrastructures while automating routine tasks, giving you more time to spend on the tasks that really drive your business.



Download the IDC White Paper "Better Together: Blades, Linux and Insight Control."

Call 1-866-625-4730

Visit www.hp.com/go/breakthecycle58

Set I.T. Free



FROM THE EDITOR

A Legacy of Failure

Why has strategic execution remained a 25-year problem?



"Ninety percent of organizations fail to execute on otherwise well-planned strategies." That's what it says on the homepage of the Balanced Scorecard Collaborative.

I first heard this alarming statistic in a conversation with Gary Cokins, a strategist at software company SAS and author of *Performance Management: Finding the Missing Pieces (to Close the Intelligence Gap)*. He's got a blog at <http://blogs.sas.com/cokins>.

While I suspect that it's true that not many companies execute their strategies fully, or even close to fully, doesn't a 90 percent failure rate (90 percent!) seems too bad to be true?

I set out to find the genesis of this statistic, and I traced it back through David Norton and Robert Kaplan's 2000 book *The Strategy-Focused Organization* to a survey of management consultants cited in a December 1982 *Fortune* article called "Corporate Strategists Under Fire." That's 25 years ago! If corporations haven't improved their management discipline in 25 years, then I think the whole industry—including the Balanced Scorecard gang—might as well just pack it in and head to the beach.

Cokins addressed this lack of progress, saying it's human nature to try out the next hot new methodology, tool or metric rather than exert the discipline necessary to bring it all together in a comprehensive performance management approach—an approach he has described as "a closed-loop, integrated system that spans the complete management planning and control cycle."

The imperative for better, more consistent execution may be stronger today than ever. In a recent study by Grant Thornton, 87 percent of U.S. business leaders said that a superior level of execution provides the bandwidth to focus on innovation—and we all know how great the demand and how strong the need for innovation is.

Today, good execution means doing everything faster, from decision making to roll-out. Our cover story, "Virtual Possibilities," by Senior Writer Thomas Wailgum (Page 34), describes how CIOs are moving beyond the first-wave benefits of virtualization "to become the fast, flexible business partners that CEOs have always wanted."

Do you think organizations have gotten better at execution in the past 25 years? Do you think you're beginning to cut into that horrible 90 percent failure rate? What's working at your company? Drop me a note and let me know.

Abbie Lundberg, Editor in Chief
lundberg@cio.com



BUSINESS TECHNOLOGY LEADERSHIP

PRESIDENT AND CEO Michael Friedenberg
PUBLISHER Gary J. Beach

EDITORIAL

EDITOR IN CHIEF
Abbie Lundberg

EDITOR
David Rosenbaum

EXECUTIVE EDITOR
Elana Varon

TECHNOLOGY EDITOR
Laurianne McLaughlin

SENIOR EDITORS
Stephanie Gelston,
Stephanie Overby

SENIOR WRITER
Thomas Wailgum

ASSOCIATE STAFF WRITERS
Christopher Lynch, Katherine Walsh

ASSISTANT MANAGING EDITOR
Emily S. Henderson

SENIOR COPY EDITOR
Cathy Mallen

COPY EDITOR
Susan Bryant-Still

EDITORIAL ASSISTANT
Kristin Burnham

EDITORIAL ADMINISTRATOR
Jill Paquette

CONTRIBUTORS

Ben Ames, Michael Fitzgerald, Galen Gruman,
Martha Heller, Margaret Locher, Elizabeth Montalbano,
John C. Reece, Robert Willett

DESIGN

EXECUTIVE DIRECTOR, ART AND DESIGN
Mary Lester

ART DIRECTOR
Terri Haas

ONLINE EDITORIAL

ONLINE EDITORIAL DIRECTOR
Christopher Lindquist

ONLINE MANAGING EDITOR
Michael Goldberg

SENIOR ONLINE EDITORS
Sandy Kendall, Meridith Levinson,
Shawna McAlearney, Esther Schindler

ASSOCIATE ONLINE EDITOR
Diann Daniel

ONLINE WRITER Al Sacco

ONLINE COPY EDITOR
David Gradjan

RESEARCH

RESEARCH MANAGER
Carolyn Johnson

SENIOR RESEARCH ANALYST
Seanna Maguire



CXO MEDIA INC.

INTERNATIONAL DATA GROUP

BOARD CHAIRMAN Patrick J. McGovern
PRESIDENT, IDG COMMUNICATIONS Bob Carrigan



©CXO Media Inc.

WHO COVERS WHAT www.cio.com/staff

E-MAIL letters@cio.com PHONE 508 872-0080

FAX 508 879-7784 ADDRESS CIO Magazine, CXO Media
Inc., 492 Old Connecticut Path, P.O. Box 9208,
Framingham, MA 01701-9208 WEBSITE www.cio.com

SUBSCRIBER SERVICES 866 354-1125 •

Fax 847 564-9453 • E-mail cio@omedia.com

REPRINT SERVICES Keith Williams • PARS International
• 212 221-9595 ext. 319 • E-mail keith.williams@parsintl.com

RIGHTS AND PERMISSION Yadira Pizarro •
212 221-9595 ext. 231 • E-mail yadira@parsintl.com

Need people
who know technology
that didn't exist yesterday?
What do you do?

Your industry can change from one day to the next. At Manpower Professional, our IT recruiters can help you find the highly skilled professionals you need to keep up with that change. Whether it's a placement or contract assignment, a single network administrator or a whole team of business analysts. Discover what tomorrow will bring.

manpowerprofessional.com/next



Manpower
Professional

Who You Gonna Call?

When a crisis hits, the buck stops with the CIO



"If I wasn't a CIO," says Joe Beery, CIO of US Airways, "I would probably be an ER doctor."

Beery clearly thrives on stress. And at US Airways, he's obviously in the right place, dealing with 3,742 daily departures, 36,602 employees and an extremely demanding, often agitated customer base. If you add to all that his ongoing challenge of integrating America West's and US Airways' computer systems after their late 2005 merger, Beery becomes a perfect person to ask about crisis management.

Having recently dealt with long lines and extensive travel delays caused by a troubled switch to a new computer reservations and ticketing system, Beery has some well-earned insights and advice on how to handle emergencies. His four best practices are:

1. Don't abandon what you know. Go back to basics. An emergency is not the time to try something new. Make sure that you and your team execute on the blocking and tackling. The play doesn't need to be pretty, but it definitely needs to work.

2. Lean on your partners and team. You know what they can do and you have to trust that they will rise to the occasion. A crisis is not the time to put a partner or vendor on notice. That time may come later, when everything is fixed. But during the crisis, you focus on fixing the problem while reminding yourself why you partnered up in the first place.

3. Lead, communicate and get into the field. This is not a time to disappear. Communicate more than you ever have; be clear in your communication and, if possible, do it face-to-face.

4. Deal with problems head-on. Be as realistic as possible about what the problem is, and be even more realistic about what it will take to fix it.

I think this is all pretty sound advice from someone who knows a thing or two about crisis management. One always hopes that issues like Katrina, 9/11, blackouts or systems meltdowns never occur, but in today's business world you can't rely on hope; you have to have a plan. As a wise man once told me, "Plan your work and work your plan."

Michael Friedenber, President and CEO
mfriedenber@cio.com



BUSINESS TECHNOLOGY LEADERSHIP

PRESIDENT AND CEO Michael Friedenber
PUBLISHER Gary J. Beach

CXO MEDIA

CIRCULATION

SVP, CIRCULATION Carol A. Spach
SUBSCRIPTION SVCS. SUPERVISOR Tina Pescaro

CIO EXECUTIVE COUNCIL

GENERAL MANAGER Mark Hall
MANAGING DIRECTOR, PROGRAM SERVICES Shaw Lively
VP, DEVELOPMENT Dexter Siglin
MANAGING DIR., CONTENT DEVELOPMENT Richard Pastore
DIR., EXTERNAL RELATIONS Karen Fogerty
DIRECTOR OF RESEARCH Michael Swenson
MARKETING COMMUNICATIONS MANAGER Jennifer Baker
DIRECTOR OF DEVELOPMENT Steve Rovniak
SENIOR PROGRAM MANAGERS Bill Golden, Carrie Mathews
PROGRAM SERVICES MANAGERS
Joyce Dunnells, Michael Fahlsing, Ellen Friedman,
Bill Roche, Janet Williams
PROGRAM SPECIALISTS Lisa Desmarais, Susan Hupp
DEVELOPMENT MANAGERS
Patrick Clarke, Lauren DeLong, Steve Dodman,
John Harrison, Kathy Mayer
DEVELOPMENT ASSOCIATE Kristin Bradshaw
SALES ASSOCIATE Jennifer Finn

EXECUTIVE PROGRAMS

VP, EXECUTIVE PROGRAMS Ellen Daly
DIR., EVENT MARKETING Mary Conroy
DIR., EVENT OPERATIONS Deb Begreen
SENIOR CONFERENCE PRODUCER Judith Kittredge
NATIONAL SALES MANAGER Curtis Chiu
EVENT PLANNER Sarah Reagan
EVENT COORDINATOR Bethany Whiffin
CLIENT SERVICES SPECIALIST Cress O'Brien
CLIENT RELATIONS ASSOCIATE Erica Foster
SALES ASSOCIATE Nicole Blackburn

INFORMATION SYSTEMS

IDG DIR. OF INFORMATION SERVICES Nancy Newkirk
I.T. MANAGER Sean McCracken
SENIOR USER SUPPORT SPECIALISTS
Christopher A. Kay, Thomas Lupien
USER SERVICES SPECIALIST Gloria Lam
ASSOCIATE USER SUPPORT SPECIALIST James Brevard
SENIOR WEB DEVELOPER David Cohen
WEB DEVELOPER Sanghee Seo

PRODUCTION

VP, MANUFACTURING Chris Cuoco
PRODUCTION MANAGER Heidi Broadley
ASSOCIATE PRODUCTION MANAGER Lisa M. Stevenson

MARKETING

SR. DIRECTOR, MARKETING COMM. Sue Yanovitch
SR. MARKETING COMM. SPECIALIST Susan Murray
MARKETING COMM. SPECIALIST Lynn Holmlund

RESEARCH

RESEARCH MANAGER Carolyn Johnson
SENIOR RESEARCH ANALYST Seanna Maguire

ADMINISTRATION

COO Matt Smith
DIR., FINANCE Margarita Chiango
SENIOR FINANCIAL ANALYST, ONLINE AND
INTEGRATED PRODUCTS Chris Bernardi
EXECUTIVE ASSISTANT TO THE PRESIDENT Diane Martin
FACILITIES SPECIALIST John Kelley
OFFICE SERVICES COORDINATOR Mary E. Wooldridge

HUMAN RESOURCES

VP, HUMAN RESOURCES Patricia Chisholm
HR REPRESENTATIVE Pauline Boyle



CXO MEDIA INC.

INTERNATIONAL DATA GROUP
BOARD CHAIRMAN Patrick J. McGovern
PRESIDENT, IDG COMMUNICATIONS Bob Carrigan



© CXO Media Inc.



COGS Up 3.4%
Profit Target Up 7.2%

Don't Blink. Your world just got a lot more complicated. Improve the efficiency of your sales, sourcing and delivery. Leverage all your systems and partnerships to boost your bottom line. Eliminate barriers to success...anywhere in the world. Only Sterling Commerce has business solutions to manage complex multi-channel selling and fulfillment. See how at www.sterlingcommerce.com/vision

Business Without Borders™



Squirrels don't remember where they hide their nuts.

They're not looking in the right places for what they need.
But you can. With proven information management software from SAS.

www.sas.com/squirrels



sas

THE
POWER
TO KNOW

trendlines

EDITED BY LAURIANNE McLAUGHLIN

NEW * HOT * UNEXPECTED

Putting the **BPM** Business in

DEVELOPMENT At Microsoft, developers will tell you that they “test their own dog food,” using their own software before and after shipping to customers. Jo Hoppe, CIO of Pegasystems, prefers a classier term to describe how her colleagues utilize her company’s business process management (BPM) software before it hits the market. “We’re drinking our own champagne,” she says.

“We’ve essentially become a living laboratory,” Hoppe says of her approach to testing Pegasystems’ BPM software, which allows business users to design their own applications without actually coding themselves. With this plan, she’s taking a step toward aligning nerdy engineers, as well as her IT department, with business users in her own firm.

Two Pegasystems departments have been testing the software, Hoppe says. Employees in HR have been using it to create an application that links open positions to appropriate résumés. Business users in the training department, meanwhile, have been building an application to help

Continued on Page 14



Meet Microsoft's Touch-Driven, Tabletop PC

FORM FACTORS

Microsoft has chosen what it sees as the next generation in form factors—a computer the size and shape of a coffee table with a touch screen display—as the third major consumer electronics product it has designed and is branding.

The recently unveiled “Milan” uses wireless autosync and touch screen technology instead of a mouse. By placing their hands on a 30-inch horizontal display, users can move around photos or videos. Bluetooth devices such as phones, cameras and Micro-

soft’s Zune can communicate with Milan by being placed on the screen.

Before introducing Milan units to consumers, Microsoft is targeting leisure, hospitality and retail environments. The product won’t be offered in full production until next year, but Milan’s first customers—Harrah’s Entertainment, Starwood Hotels and Resorts Worldwide, and T-Mobile USA—should deploy the first \$5,000 to \$10,000 computers by year’s end.

Harrah’s is developing custom applications for about 50 Milan units it ordered, says Tim Stanley, Harrah’s CIO. These include a mapping program; at VIP lounges, Harrah’s Total

Rewards plan members will be able to place their member cards on the screen and be identified, allowing them to browse interactive maps that show amenities, entertainment and restaurants from Harrah’s eight properties in Las Vegas and order tickets or make restaurant reservations.

Milan won’t be ready for consumer living rooms for some time, though Microsoft is headed there, says David Dauod, an analyst with IDC, a sister company to CIO’s publisher. “Ultimately, Microsoft’s goal is to see the product become something like what used to be a plasma TV,” he says.

—Elizabeth Montalbano

SEC Plans Radical Revamp of Web Data

DATABASE When it comes to storing massive amounts of information, it's usually safe to assume that digital is simpler and tidier than paper. But when it comes to the Security and Exchange Commission's online filing system, Edgar, even Chairman Christopher Cox admits that it's been an ineffective combination of the old and new. "It is really just a vast electronic filing cabinet," he told the Senate subcommittee on financial services at a hearing in May. A new online system will truly digitize SEC financial records, utilizing extensible business reporting language (XBRL) to make the data more interactive.

Until now, Edgar (a popular choice for researching publicly filed SEC documents) has been a repository where companies upload paper-based reports and various financial forms. When people go to assess the data, it's often lost amid long text or HTML files that are hard to search. Finding the right numbers "has been nearly impossible for the average retail investor," Cox said in Congressional testimony.

The new system will use XBRL to tag each file, so users can not only find data about a company but also compare that data with others in the industry to gauge performance and make projections.

According to Cox's testimony, the SEC will invest \$54 million on the project over the next few years; it has not revealed a more specific completion date. Meanwhile, many companies are participating in voluntary pilot programs to submit their data to the SEC in XBRL format.

—C.G. Lynch

BPM

Continued from Page 13

Pegasystems customers register for BPM training sessions.

In each case, Hoppe says, the goal is to have the business users own the project. "We're actually having business users be the project managers," she says. Laurie Orlov, VP and principal analyst with Forrester Research, says that IT groups have used a variety of BPM software for similar purposes of alignment in the past but have generally targeted educated users who are well-versed in technology. "It's usually a business analyst who is very technical," she says. "We're not talking about the person on the street or in the customer service department.")

Now, the question every CIO might wonder about: If software like this takes off, have I marginalized IT's role?

Hoppe says no, since IT must handle behind-the-scenes technical elements. For instance, since the applications being built by business users at Pegasystems require reference data existing in other areas of the business, IT is building an SOA repository of reusable services. Frequent check-ins are very important as well. "We're helping provide a level of expertise and guidance," she says.

The result of this project will be a white paper or, as Hoppe calls it, a "manifesto," explaining how business users can actively help build the application.

In the meantime, Hoppe's eyeing another benefit. She hopes the project will cut down on rogue users taking matters into their own hands when needs don't get immediately satisfied by IT.

"In IT, the project list is always five times longer than the resources you have," she says. "So projects are based on ROI and we get to the ones we can. But for those projects that didn't get prioritized, their business problem didn't go away, and now they have to live with it."

If her software works, maybe they won't have to.

—C.G. Lynch

Like FATHER, Like SON?

CAREER What do you tell your son or daughter about pursuing a career in the IT field? Here's what 263 CIOs said in a **CIO.com** online poll:

40%: Go to business school (or medical or law school). You can always do IT-related work in those professions, but you need a fallback.



22%: Do something else. Many IT workers see their jobs outsourced, and you don't need that experience in your life.

20%: Follow me. IT is a rewarding chance to participate in innovation and growth.

10%: Be careful. If you specialize in the wrong thing, you won't make it past your midcareer mark.

8%: Do your Mandarin homework. China (or India) is where the big money is going to be made.



Fujitsu recommends
Windows Vista™
Business.

Fujitsu LifeBook® Notebooks: Your first-class ticket to reliability.

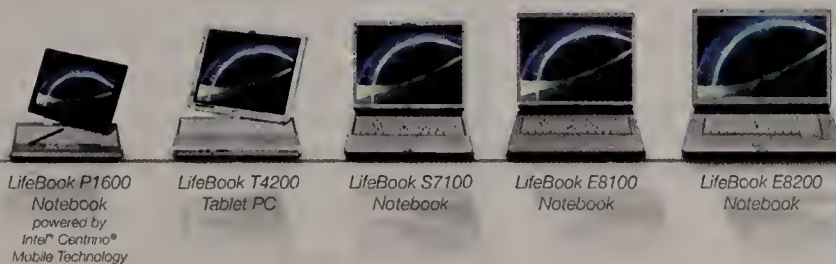
The Fujitsu family of notebooks with Intel® processors takes reliability and durability farther than ever before.

Reliable Fujitsu LifeBook notebooks are the engines that drive your productivity. The Fujitsu LifeBook family ranges from ultralight convertible notebooks with intuitive pen-driven touchscreen input to powerful desktop replacement models with the latest Intel® Centrino® Duo Mobile Technology and versatile modular bays. Whatever your needs, you'll find a LifeBook that delivers the ideal blend of innovative features that make you more productive. What's more, because reliability is even more critical for mobile users, we manufacture LifeBooks in-house so we can maintain our high quality standards throughout the entire process.

Go to us.fujitsu.com/computers/reliability for more information.

MULTIPLE LEVELS OF SECURITY keep your data safe
with embedded TPM, integrated fingerprint sensor,
Fujitsu Security Application Panel, and more.

MULTIPLE CONNECTIVITY OPTIONS—including Wi-Fi®,
Ethernet, and modem—simplify collaboration and
communication away from the office.



LifeBook P1600
Notebook
powered by
Intel® Centrino®
Mobile Technology

LifeBook T4200
Tablet PC

LifeBook S7100
Notebook

LifeBook E8100
Notebook

LifeBook E8200
Notebook

FUJITSU

THE POSSIBILITIES ARE INFINITE

©2007 Fujitsu Computer Systems Corporation. All rights reserved. Fujitsu, the Fujitsu logo and LifeBook are registered trademarks of Fujitsu Limited. Centrino, Intel, Intel Core, the Centrino logo and the Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. All other trademarks are the property of their respective owners.





Power for a Real Worldwide Web

DEVELOPING WORLD The average person in the Western world takes the Internet for granted, yet fewer than 20 percent of the 6 billion people living on this planet have access to it. **Web-enabling 50 percent of the world's population by 2015** may sound ambitious, but that's AMD's goal for its 50x15 initiative, which will stress the use of alternative sources of sustainable, affordable power.

Working with corporations and foundations, AMD has deployed 20 Learning Labs (Net access centers for students and residents) in China, South America, India and many African nations, including Burkina Faso and Uganda, says Dan Shine, director of the initiative. The labs feature hardware from nonprofit Inveneo. The \$469 Linux-based Inveneo computing station is designed with low-income, rural areas in mind, says Kristin Peterson, cofounder of Inveneo. **"The key challenges are lack of power and dependable electricity, and dusty, hot and humid conditions,"** she says. Based on the AMD Geode Processor, the PC consumes only about 20 watts of power and lacks a fan, to make it much more tolerant of dust and humidity.

Where power is limited, energy-efficient systems and alternate power sources are necessities. Bob Marsh, VP of engineering at Inveneo, says that because of climate change and other factors, Lake Victoria, the water source that provides Northern Uganda with hydroelectric power, continues to shrink. "Just in the last two years, it's gotten dramatically worse; the power sometimes fails two or three days at a time." The Uganda Learning Lab **utilizes a backup battery solution for alternative power;** designed by Marsh, it's similar to slow-drain marine batteries. Solar panels provide supplemental energy at the lab in Burkina Faso, says Shine, adding that such alternatives are necessary for AMD to fulfill the goals of 50x15. "In order to get 50 percent of the world connected by 2015, it will be absolutely essential to get off the grid."

—Katherine Walsh

Cities Move Forward on Public Wi-Fi

WIRELESS Cities launching free wireless Internet access often face criticisms including high cost, flaky service and pandering to recreational Web surfers. But they can justify their investment by using the networks to support public safety radio traffic, attract new businesses and abolish the "digital divide" that can stop low-income workers from landing Internet-age jobs. That's the advice from government technology workers who gathered at the recent MuniWireless 2007 conference.

Ubiquitous wireless coverage can improve residents' lives, but surprise hurdles will arise, says Bill Oates, CIO for Boston. The city had been running its new Wi-Fi network for a month in the blocks surrounding the city hall when citizens complained that the Internet service provider's content filter blocked certain websites.

Cities can also face a challenge when the local historical society complains about a wireless antenna's appearance. City workers in Malden, Mass., found a workaround to this hurdle, fitting a Wi-Fi antenna inside the storefront sign of a local bar. The business owner gladly donated the location in exchange for a strong signal, and the node boosted coverage in a heavily populated part of town, says Anthony Rodrigues, the city's director of information technology.

The politics of launching a wireless network can be a tougher challenge than technology, Rodrigues says. It's fairly easy to link the networks in neighboring towns to share coverage areas or fire response but much harder to get elected leaders to discuss funding or agree on control of the network, he says.

Until recently, public wireless networks have existed only in major cities with large budgets, including Philadelphia, Chicago, Houston and Portland, Oregon, says Esme Vos, founder of MuniWireless.com, a blog and sponsor of the conference.

But across the country, the number of municipalities with planned or deployed public broadband networks has risen from 122 in July 2005 to 385 as of May 2007, according to MuniWireless.

—Ben Ames



CIO2CIO 2 PERSPECTIVES

Today's IT Leaders on Market Trends

OVERRUN BY DATA? MAKE YOUR DATA WORK FOR YOU

When it comes to enterprise data management, businesses today find themselves in a classic Catch-22. Companies have perfected the art of collecting data; they've got terabytes of data about customers, employees, products, suppliers and partners. But now they're challenged to manage all that data so that it can be reconciled, shared and reused across multiple users, applications and businesses processes.

In fact, according to new data collected by IDG Research, 70 percent of CIOs surveyed place a critical or high priority on managing their enterprise data in this manner. But what specific technologies are companies investing in to support their data programs? What's driving these initiatives, and what are the unique challenges associated with enterprise data management?

Approaches to Data Management

First, it helps to briefly outline three interrelated ways in which many data management initiatives play out.

- **Data governance:** the policies, technologies and organization required to manage and ensure availability, accessibility, quality and consistency of company data.
- **Master data management:** the management of reference data (or data representing core business entities) shared by disparate systems and organizations.
- **Data quality:** the framework for ensuring that information is complete, valid, consistent and accurate.

Data governance is primarily thought of as an organizational alignment initiative driven jointly by business and IT staff, while master data management, or MDM, is closely linked to information management technologies and processes. While they are separate disciplines, these two programs are often pursued in conjunction because they both seek to ensure the critical information assets of an enterprise are aligned to business needs. Addressing data quality—with focused efforts to improve data quality programmatically—is a logical first step in implementing these broader data management initiatives.

According to IDG Research, 37 percent of companies surveyed have implemented or are pilot testing a data governance program; 32 percent are doing so for data quality and 31 percent for MDM. Each initiative requires specific technologies and business processes, but the objectives are largely aligned.

IDG Research recently reported that 73 percent of IT decision makers cited "improving business intelligence" as the top driver for their companies' master data management, data quality and data governance initiatives. Respondents say they hope to derive better business intelligence and improved operational efficiency from their enterprise data management programs. With well over 1.5 billion terabytes of information created each year, the problem is only growing.

Business and IT Challenges and Solutions

Experts say that many attempts at data gover-



About CIO2CIO

Perspectives: This peer-based thought leadership program analyzes quantitative research and tests it via qualitative interviews with actual CIOs. The resulting executive insight is then disseminated via CXO's multimedia assets. To learn more about CIO2CIO Perspectives, please contact mavery@cxo.com.

nance fail due to a lack of organizational commitment and inability to align business and IT. This is validated by the research, which found that 47 percent of CIOs say the biggest challenge in implementing data management initiatives is changing the culture in their organization. Thirty-five percent say their biggest obstacle is clarifying organizational roles and responsibilities.

It's clear that data governance cannot exist in a vacuum. It is about much more than organization charts and executive committees. A successful governance initiative should align business and IT staff in a collaborative structure to set standards and policies, then provide them with the technology and tools to manage, improve and monitor data as part of an ongoing, ever-evolving program.

The inverse is also true. When implementing data quality and MDM programs, which are often technology-centric, companies need to engage the business. Unfortunately, that's not happening today, as 47 percent of CIOs report that their data quality and MDM programs are driven primarily by IT.

What About Technology?

More than two-thirds of CIOs surveyed say that technology is either critical or very important to their MDM and data quality programs, and over half feel the same about data governance. So what specific technologies are they using to support them?

Dedicated MDM applications, while growing, are still a small portion of the market. Instead, 56 percent of CIOs say they're using data warehousing tools to support their MDM programs, while 51 percent are using business intelligence tools. To a lesser extent, CIOs report using data modeling and workflow/collaboration solutions, as well as data integration and data quality tools. The continued use of such general-purpose tools demonstrates the criticality of getting the basics right for MDM: cleansing and integrating data, and providing business visibility into the data.

On the data quality front, 71 percent of CIOs polled by IDG Research reported that data quality was a critical or high priority for their organizations, with two-thirds of them saying that technology is very important to the success of their data governance initiatives.

To achieve better data quality, companies need tools that create and maintain definitions and rules that can be shared in a common repository. This is echoed in the research, in which 46 percent said their data management programs would derive significant value from a common business glossary of data definitions. More than one-third placed significant value on repositories for managing access and changes to all shared data.

Dedicated data quality tools not only fix bad data but also address the root problem of bad data by making sure it doesn't get created in the first place.

Regarding data governance, technology may not be the primary focus, but it plays a crucial supporting role, enforcing the governance policies and standards, and fostering collaboration between IT and business. For example, nearly half of CIOs report using metadata management and data modeling tools—tools that enforce common data standards and definitions—to support their data governance programs. Forty-nine percent use data integration tools to ensure the accessibility and consistency of data in their organizations. And 41 percent rely on workflow tools to streamline collaboration for data governance.

Conclusion

When companies decide to implement an enterprise data management program, it's crucial to establish a dedicated governance function to ensure alignment with corporate and strategic initiatives. At the same time, integrating technology fully into the governance discussion will help realize corporate growth goals.

Organizations that invest in these programs will derive more value from their enterprise data assets, and will also be able to wield those data assets as a competitive weapon. Deep understanding of customers will increase revenue. Agility in deploying data in new ways will drive new growth opportunities. Accurate, consistent data will reduce operational errors and improve compliance.

It's all about making your data work for you, in alignment with your business goals. ■

Go to www.cio.com/whitepapers/datagov now to obtain a free download of "The Data Dilemma." Based on a major research survey by IDG Research Services featuring in-depth discussions with CIOs at midsize and enterprise-class organizations, this just-released white paper aims to help CIOs analyze their systems and IT businesses to run more effectively and efficiently, and it draws on peer insights to create highly available and manageable systems.

The CIO Pocket MBA

October 15–19, 2007

Boston University's Executive Leadership Center
Boston University School of Management

For complete program details visit
management.bu.edu/exec/elc/cio

Executive Programs

Get the CIO Pocket MBA Advantage

Register now as space is limited!
management.bu.edu/exec/elc/cio

Or contact us directly at:

Phone: 617-353-4248

Email: elc@management.bu.edu

The early registration discount rate for this program is \$4,245
if you register before September 5th. After September 5th the
registration rate for this course is \$4,995.

A Commitment to Excellence

A New Era In Collaboration

World-Class Education with Real World Application

Sessions Presented By

Boston University Scholars:

N. Venkat Venkatraman

and

John C. Henderson

and other distinguished faculty

Presented by:



Business
Technology
Leadership



Captive Offshoring **Disappoints**

Contrary to popular belief, managing your own center doesn't always make the most economic sense

OUTSOURCING Instead of paying a service company to run offshore development efforts, set up your own captive center offshore and watch the savings roll in. That's a theory that many U.S. businesses tried out during the past few years—but new research shows that in many cases the results don't pan out. Running an offshore captive center isn't as beneficial or cost-effective as companies expect it to be, says Forrester's recent report, "Shattering the Offshore Captive Center Myth." More than 60 percent of captive centers fail to meet expectations and are now struggling, the report states.

"Companies start out thinking that running a captive center will be as easy as opening a new office. That couldn't be farther from the truth," says Gordon Brooks, president and CEO of Symphony Services, one of the companies Forrester interviewed for the report. Management support and enthusiasm for offshoring is short-lived, high attrition at the facilities kills productivity, and efforts suffer from a general lack of process and integration, he says. Most new centers won't be able to overcome those obstacles, he says.

Even large corporations with the overhead and experience to succeed are abandoning the captive model, according to Forrester's research. As many as 50 percent partner with a supplier that, over time, makes the center its own. This scenario allows executives to save face.

If you still want to try a captive center approach, be focused and have a plan that will get employees truly collaborating, Brooks says. But understand the economics. "If a company has a plan to ramp up to 1,000 or more people, then setting up a center is feasible," Brooks says. "Now anything under 1,000 is rarely even contemplated."

Best Practices

- 1 Don't** make your best technical person the head of a captive center. The CIO-equivalent at a captive site should have technical, HR, recruiting, legal, compliance and business orientation skills, since he will help create and nurture teamwork.
- 2 Set** expectations for the board and your staff. Have clear productivity goals and ROI targets and metrics. Too often companies decide to open a captive center and then no one measures productivity, says Brooks.
- 3 Senior management** must be committed to the success of the center. Ask them to visit on a set schedule, perhaps quarterly.

TRENDLINES

Captive Center Problems

Savings Don't Materialize

A captive center of 150 people can cost **\$2 million** per year more than using a third-party provider for the same work, because captives

- * Hire more senior staff
- * Spend lavishly on buildings and furnishings
- * Can't reduce costs over time via renegotiation of contracts or volume discounts.

SOURCE: Forrester Research

Staff Loyalty Not High

Attrition at captive centers runs **30% to 40%**—higher than the third-party provider average rate of **20%**.

your business needs SAP your users need a way to make it work for them.

**Cognos unlocks the value of your SAP data
so your users can make better business decisions.**

With Cognos' performance management solutions, SAP users can easily create reports without relying on IT. Even those that access non-SAP data sources. They can monitor performance via dashboards. Track key metrics via scorecards. And more easily forecast business plans. All from one integrated, web-based platform.

That's why thousands of SAP customers choose Cognos to leverage and extend their SAP investment.

Visit www.cognos.com/solutions4sap today.





CIO EXECUTIVE VIEWPOINT

Enterprise Architecture

As Organizations Wrestle with Emerging Practices Such as SOA
Enterprise Architecture Becomes Ever More Relevant

Jan Popkin, Strategist, Telelogic

Jan Popkin is widely known as an advocate for the adoption of enterprise architecture and modeling as a means for organizations to better align their technology and business processes with their organizational strategies and goals. He speaks worldwide about both business and technology issues. He is the founder and former CEO of Popkin Software, a leading enterprise architecture and business process modeling tool vendor.

Let's first talk a little about enterprise architecture today. How do you define enterprise architecture? What is its place in the world these days?

Enterprise architecture is a practice that centralizes and makes accessible information about IT, data and business processes. Organizations can easily see the relationships among these different areas and understand how they support the achievement of business goals and strategies. The value of an enterprise architecture lies in having this information readily available to different people within an organization in terms that they can understand and easily assimilate. With this knowledge, people can make smarter decisions about optimizing business processes and adopting new technologies.

"Enterprise architecture's role is to deliver the information and analysis that helps organizations understand how to leverage the true value proposition of SOA."

One of the hot buzzwords these days is service-oriented architecture (SOA). How do enterprise architecture and SOA relate to each other? Does enterprise architecture help organizations that are implementing an SOA strategy?

First, let's agree on a common definition of SOA: a loose coupling of applications in multivendor, multiplatform environments. It provides the enterprise view of the "interoperability" of services. SOA can also be viewed as an overarching architectural principle that opens the door to using IT technology in new

ways. It can help improve efficiency and productivity and provide value to both providers and consumers of services. SOA initiatives can help drive a collaborative effort between business and IT with the goal of improved agility. Enterprise architecture and SOA have tremendous crossover when you look at it from an architecture perspective. Enterprise architecture's role is to deliver the information and analysis that help organizations understand how to leverage the true value proposition of SOA.

What benefits does enterprise architecture offer organizations that want to manage their SOA program?

Enterprise architecture is the intellectual component of an SOA implementa-

tion. Using an enterprise architecture, organizations can approach SOA as a new way to enable architecture instead of another new technology to move data. To be successful in their application of SOA, organizations first need to understand how their businesses operate today and how technology supports those operations. Enterprise architecture is the platform for delivering the knowledge needed to make decisions about how to perform new tasks in new ways and to avoid the trap of formalizing old ways of doing things, using a new technology such as SOA. This, in turn, ensures that



SOA delivers on its benefits of reconfigurability and agility.

Could you elaborate on that?

Enterprise architecture imposes order on the randomness of the discrete systems being layered together to create the collaborative whole that is characteristic of an SOA environment. It adds the perspective of time to the SOA process and helps organizations see SOA's value in a broader context. Enterprise architecture also helps give context to decisions about the reuse of existing services and how to reduce costs and time-to-build.

For More Information: Check out this white paper, "Preparing Your Organization for a 'Flat' World", at www.cio.com/whitepapers/telelogic.

Telelogic
Requirements-Driven Innovation



ESSENTIAL

FROM INCEPTION TO IMPLEMENTATION—I.T. THAT MATTERS

technology

Edited by **Laurianne McLaughlin**
lmclaughlin@cio.com



How can you stop enterprise e-mail management from gobbling large amounts of IT time and money? Outsource it, say a growing number of CIOs.

E-Mail Has Left The Building

BY GALEN GRUMAN

OUTSOURCING | When global staffing firm Adecco Group began an effort one year ago to consolidate and outsource its five data centers into one, Dave Bossi came to the realization that moving the data center would also move three separately managed Microsoft Exchange e-mail servers of different versions and a fourth legacy e-mail technology—with potentially huge disruption to 10,000 e-mail users. Bossi, the North American vice president of IT, thought this might be an opportunity to rethink the company's e-mail strategy. "E-mail tends to get lost in the mix. It becomes an afterthought," Bossi says. Unless, of course, something goes wrong.

Bossi's case for outsourcing broke down like this: If Adecco moved the e-mail servers to a separate outsourced provider, the e-mail systems would be unaffected in the event of any trouble (like network overloads) at Adecco's data center. Having a dedicated e-mail provider also makes administering e-mail accounts, managing servers and handling frequent software patches more efficient and less dependent on other data center resources. It shifts the responsibility for malware protection to a specialist—and eliminates the need to manage anti-

malware appliances. CIO Alwin Brunner liked Bossi's logic. Adecco is consolidating its four e-mail platforms into one, which is hosted by USA.net (separate from Adecco's outsourced data center that IBM manages).

Today, Bossi and Brunner say they're very happy with the performance and lower cost of e-mail outsourcing. For example, Adecco cut its e-mail administrator staff in half to three people and repurposed much of the physical infrastructure to other projects, saving thousands of dollars and eliminating the need for future equipment purchases.

Like Adecco, an increasing number of large enterprises are deciding that e-mail is mission-critical but is plain-vanilla enough to be outsourced, says Mark Levitt, vice

The Arthritis Foundation is a case in point. Four years ago, "we were spending all of our time keeping the systems running, not bettering the foundation's goals," recalls VP of Strategy Management and CIO Marla Davidson. "We realized we could get a lot more depth from our staff by using a managed service provider for those operations," she says. Outsourcing also reduced the risk of failure: "We had just one e-mail admin, so if that person was on vacation or got sick, we would just hold our breath," she says. Now, the foundation gets 24/7 coverage it didn't have before.

"Our costs declined and our service levels improved. Plus we get more disciplined management and better security,"

"We had just one e-mail admin, so if that person was on vacation or got sick, we would just hold our breath."

—Marla Davidson, vice president of strategy management and CIO, the Arthritis Foundation

president of collaborative computing at IDC, (a sister company to *CIO*'s publisher).

The proliferation of malware is also pushing the trend, says Don DePalma, president of consultancy Common Sense Advisory. Now that spam accounts for more than half of all e-mail messages, many businesses are looking to outsource message filtering because the internal burden has gotten too great. This is often the first step a company takes toward eventually outsourcing the entire e-mail burden.

Smaller Firms Lead the Way

Small companies—those with fewer than 100 employees—have gotten the jump on outsourcing e-mail, IDC's Levitt notes. More than half of all small-business e-mail accounts are now outsourced or under consideration for outsourcing, according to a recent IDC survey. Lack of IT resources tends to drive small companies toward outsourcing much of their IT operations, and e-mail has gone along for that ride.

Davidson says, letting the foundation now support some Sarbanes-Oxley rules that it couldn't afford before. (While not obligated to follow them, executive management saw several as beneficial governance approaches, she says.)

Originally, Davidson outsourced all IT operations to one vendor. But after several years of seeing the systems actually outsourced, it became clear that some, such as e-mail, could easily be handled separately. "We now view Exchange as a commodity service. It's OK to be separate," Davidson says. So when the foundation asked for bids to take on the outsourcing as part of its contract renewal two years ago, she separated e-mail into its own RFP to open up more competition.

Making Your Case

The case for outsourcing e-mail has been harder for enterprise IT to make, IDC analyst Levitt notes. "It's not easy to hand off; it's as core to IT as you can imagine," he

TOOLBOX

E-Mail Gurus

Among the vendors offering e-mail outsourcing, many are local or regional providers serving the small-business market, which led the adoption of this approach. However, a growing number of firms also serve midsize and large enterprises. Those that deliver Microsoft Exchange hosting include 123Together.com, Apptix, AT&T's USi division, Connectria, Intermedia.net, Orange Business Services, Rackspace, USA.net and Verizon Business.

Providers of IBM Lotus Notes hosting include Connectria, Prominic.net and Riverwatch.

For enterprises that are willing to move away from the established e-mail applications (Exchange, Notes and Novell GroupWise), Google recently began providing a business-class version of its Gmail service.

Many providers also offer remote monitoring and management of internal e-mail servers, for enterprises that want to keep ownership of e-mail systems onsite. Examples of those supporting midsize and large enterprises include AT&T USi, Azaleos, Cognizant, Connectria, Dimension Data, Hewlett-Packard and IBM.

For CIOs looking to outsource just e-mail spam and threat management, options include MessageLabs, MX Logic, Postini and Sophos.

—G.G.

says, with a lot of resources and expertise already invested. That investment acts as an anchor that keeps the e-mail servers and administration in-house. However, as large enterprises consider consolidation, system upgrades or large outsourcing efforts, it makes sense to consider an e-mail outsourcing strategy at the same time, Levitt says.

"We wonder why we didn't do it sooner," says Tom Roets, vice president of IT at Sonic



We are Technology Execution.

Staffing Services
Team Services
Workforce Management Services
Component Services

As the premier provider of Technology Execution services, TEKsystems' expertise in technology implementation is matched only by our unrelenting commitment to service.

So, when you're ready to implement virtually any form of technology, we'll get it done through our full range of service offerings—from providing Technical Professionals with the right skills, to deploying the expertise and methodology needed to manage complex technology implementations.

Our passion is exceptional execution. Our goal is to become a valuable contributor to your business.

TEK
systems

people YOU CAN TRUST. results YOU CAN COUNT ON.



Automotive, a national retailer. A year ago, the company had two e-mail systems: Microsoft Exchange at its corporate headquarters and Ipswitch IMail for its national sales and dealer offices. For years, managing those systems had been a growing burden. "We spent a lot of time on patches and monitoring the platforms. We spent seven days a week keeping up the mail systems," says Chris Maritato, the national director of IT. But there were many fears to overcome. "We have to be compliant with Sarbanes-Oxley and have disaster recovery," he notes. Then there was the fear of such fundamental change, Roets says: "When you're faced with 11,000 people in the field, that's a lot of angry people if there's a hiccup."

But by last year, another pressure was bearing down on Roets and Maritato. "We could not reliably support 11,000 people the way we were doing it. The user satisfaction scores were going in the tank," Roets says.

So the company decided to both consolidate its two e-mail platforms into one (Exchange) and outsource e-mail, to Verizon Business. "We did a pilot for 30 days," Roets recalls, before committing to the switch. To be safe, "we also put the most mission-critical people at the end of the transition," he adds. Within four months, the transition was complete.

Not only did the management headache disappear while costs stayed about the same, but also, e-mail service actually improved, Roets notes. Rather than rely on one e-mail administrator to manage user accounts, Sonic could now rely on its whole help desk staff to do so, using a management portal provided by Verizon that didn't require the expertise that the previous setup did. This let Sonic redirect a staff member to other IT needs to meet strategic business objectives, Maritato says.

Although there were some fears about

having e-mail data hosted outside the company, Sonic performed a security assessment on Verizon that showed "there was no additional risk to outsourcing," Roets says.

Adecco's Bossi and the Arthritis Foundation's Davidson came to the same conclusion. If anything, Davidson believes security is higher when outsourced, because an outsourcer can leverage its knowledge across all clients, which means it can be more capable and efficient than any individual client could. "They do security monitoring that we could never do," she says.

A Few Caveats

Outsourcing e-mail at large companies can work, as the experiences at Sonic and Adecco show. But it does require careful strategic planning because of the integration between e-mail and other applications that may exist, notes IDC's Levitt.

"You need to understand how your e-mail system is being used before you do a consolidation or migration," echoes Bossi. When consolidating his four e-mail platforms, Bossi found real differences among user groups. Some frequently use features like public folders, for example. "You need to understand all of that to transmit the right requirements to the outsourcer," he says.

You may also have some custom integration with other enterprise systems, such as order-taking systems, which get their input from e-mail, Bossi notes.

For organizations that aren't ready to make the leap to complete outsourcing, there's an interim step: Have a managed service provider remotely monitor and control the e-mail servers in-house, says IDC's Levitt. IBM, Hewlett-Packard and other consultancies have long offered this service.

Still, outsourcing e-mail will not work for everyone. The city of Seattle's CISO, Michael Hamilton, has contemplated migrating his e-mail to an outside provider, but decided against it due to several challenges. The toughest one is the city's use of Novell's GroupWise e-mail server, which very few outsourcers support, he says. Another challenge is the high level of heterogeneity among city agencies, many of which have

About
are hosted
onsite at
enterprises
today. Out-
sourcers host
500 million.

SOURCE: IDC

very specialized requirements. The police, for example, don't want their data stored off-site, for security and privacy reasons.

But Hamilton did outsource his e-mail anti-malware operations to Postini to get that burden off his plate.

Plan Ahead

Enterprises considering e-mail outsourcing should think expansively, recommends Wu Zhou, a senior research analyst for network lifecycle services at IDC. As voice and data technologies merge, e-mail will morph into or become part of a unified messaging platform, she says. "Find the partner that can not only provide cost-effective outsourcing of e-mail but also work with you to grow the functionality."

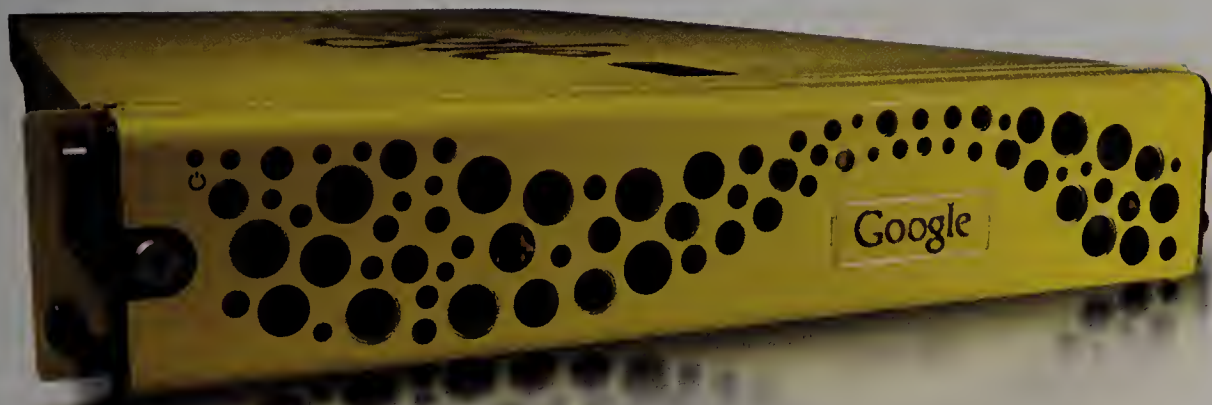
It makes sense to anticipate other e-mail needs when you outsource, agrees Adecco's Bossi. For example, mobile messaging at Adecco is today split between Palm Treo and Research in Motion BlackBerry devices. But his outsourcer supports Microsoft gadgets too. So if and when his users want those devices, he'll be covered. And he can let someone else handle the details. **CIO**

Galen Gruman is a frequent contributor to CIO. You can e-mail him at ggruman@zangogroup.com or send comments to letters@cio.com.

LOCK IT UP

For more background on safety concerns and best practices, see **SECURITY SECRETS OF OUTSOURCING** at www.cio.com/article/104804.

cio.com



**GOOGLE IS ALWAYS LOOKING
FOR SMARTER WAYS TO WORK.
DELL ENDED THEIR SEARCH.**

Google needed a better way to build, power and distribute their Search Appliance for business. Dell's world-class technology, supply chain, and real-time flexibility gave them the solution they were searching for.

Because Dell designs solutions with one company in mind. Yours.

Read the whole story online
or call Dell to start your own.

dell.com/google/cio

1.877.432.DELL



The ROI of Trust

Treat security and privacy spending not as something you have to do but as something you want to do



Security and privacy are bad words with bad histories, evoking bad connotations with most enterprise stakeholders. For companies to succeed at safeguarding their data, these words must go away. Here's why:

Information security and privacy protections today are a response to the ills that have befallen enterprises over time. As a result, security and privacy practices tend to be restrictive. Furthermore, there seems to be no natural home for security or privacy in the corporate hierarchy.

As a consequence, neither security nor privacy has been associated with the positives of most institutions or with their strategically important initiatives. Investments in security and privacy are most often viewed as insurance premiums—to be kept to a minimum, consistent with the risk experience of each institution. But in today's world, where an increasing majority of institutions do business online using telecommunications networks that span the globe, security and privacy protections expressed in negative terms don't make the grade.

Enterprises need a positive approach that positions avoidance and mitigation of information security and privacy risks as elements of their business model. They must adopt an approach based on winning the trust of all stakeholders. Trust means that customers, employees, channel partners, contractors, vendors and shareholders feel safe and are confident in the secure delivery of their products and services along with protection of their private information.

How Companies Secure Trust

Given the status of security and privacy today, the CIO is most often anointed as enterprise information security and privacy



WATCH YOUR PEACE OF MIND **Grow.**
WATCH YOUR COST OF OWNERSHIP **Shrink.**

The rules of enterprise storage have been rewritten. A new era of Network Attached Storage (NAS) has been born. Our line of Unified Network Storage appliances raises the bar for large-scale storage applications by delivering new levels of reliability, density, performance, and efficiency. By consuming a fraction of the floor space and half the power of competitive offerings, agami solutions ultimately allow you to consume far fewer dollars on storage. To learn more about curbing the high cost of storage while achieving new levels of availability, get a free copy of the Taneja Group report "Economical, High Performance NAS". Visit www.agami.com/CIO or call 1-877-749-1794.



agami
systems

Copyright © 2007 agami Systems, Inc. All Rights Reserved.

champion. Therefore, CIOs should lead the enterprise to a trust-based business model. The first step is to rethink how the business can engage stakeholders securely and privately through its technology-supported business processes.

Take as an example American Express. As an employee there in the late 1960s and early '70s I participated as Amex established one of the earliest global financial networks. Amex provided its cardholders and service establishments with what was at the time a revolutionary new way to do business: They could execute secure and private financial transactions anytime, anywhere in the world. To make this so, Amex created an operational approach to ensure that transactions would be absolutely accurate, fully consistent with the individual's ability to pay and protected to the fullest degree practical against fraud and disclosure.

The linchpin of this model was and is the magnetic-stripe card, which identifies and validates card members and other authorized stakeholders to use the integrated global network. Driven by Amex's then-CEO, the offering from its outset focused on using technology and innovative business processes (many of which had to be invented), to capture the frequent-traveler market. The model also had to assure service establishments accepting the card, as well as corporate management and financial institutions, that fraud would be strictly controlled.

Amex's approach, with systematic enhancements, has endured for nearly 40 years and continues to earn the company trusted status around the world. As proof, Amex was voted as the most trusted company in the United States two years in a row by respondents to a survey by the Ponemon Institute, a privacy think tank. Amex's approach to security and privacy has won it a preeminent position in the financial services industry worldwide.

How Trust Works

The Amex example offers several insights for enterprises operating in a networked world:

- Being networked is a communal choice, one in which the capability of the least secure player defines the degree to which operations are secure and data is protected.
- Trust among partners is as important to the providers of products and services as it is to the recipients.
- Human assistance is vital. A company must ensure that a human being, armed with as much supporting information as possible, is available to deal with nonstandard transactions. In this way, users can feel they have received the best possible resolution of their needs.

- Securing the network and the information it transports requires an end-to-end design that encompasses all elements of the transaction process, not

Companies will use trust to forge new alliances with stakeholders. And in doing so, they will define competitive success in a global, online, real-time marketplace.

a collection of bolted-on technologies and techniques added periodically in response to isolated incidents.

A final lesson from Amex is that the CEO and board of directors must be proactive participants in the strategy to build and sustain trust. Amex executives view card member trust and the assurance of fully secure access to its products and services as essential elements of their value proposition.

A trust-based business model is a natural extension of enterprises' commitment to compliance with Sarbanes-Oxley (Sox) regulations and the transparency that results. Moving to a trust-based model builds on the scope of Sox from its nearly singular focus on financial controls to an emphasis on the end-to-end operational value chain and all of the embedded processes and techniques designed to secure it. Thinking about trust in conjunction with Sox brings the CEO and the board into the equation—better ensuring their active engagement in setting critical strategies and policies.

Redefining Security and Privacy

Given pressure from stakeholders and the demands of regulators, the key to enterprise growth and the CIO's long-term job security is the CIO's ability to reshape his company's thinking about security and privacy. CIOs need to establish incentives for their executive management to create an operating model that earns stakeholders' trust. If they are successful, security and privacy will change dramatically. With direct CEO- and board-driven leadership, security and privacy will become embedded in investments in new ways of doing business, as opposed to being add-on insurance premiums.

The payoff from moving to a trust-based business model is high—perhaps even a matter of survival for some enterprises and some industries such as health care. Thus, trust will emerge as the new basis for securing enterprise operations and protecting stakeholder information from all risks—strategic, operational and tactical. Companies will use trust to forge new alliances with stakeholders by guaranteeing secure and private interoperability. And in doing so, companies will define competitive success in a global, online, real-time marketplace. **CIO**

A Good Reputation

Find out how companies build trust in
THE PROFITS IN CUSTOMER PRIVACY
at www.cio.com/article/19070.

CIO.com

John C. Reece, chairman and CEO of John C. Reece & Associates, is the former CIO of the IRS and of Time Warner. He can be reached at jc.reece@att.net. To comment on this article, go to the online version at www.cio.com/article/112051.





Introducing the BlackBerry® 8830 World Edition.

Works around the world. And around the block on America's most reliable wireless network.



Cairo, Egypt

now only
\$199⁹⁹

\$399.⁹⁹ 2-yr. price less \$100 advanced device credit, less \$100 mail-in rebate = \$199.⁹⁹ with new 2-yr. activation on any voice plan of \$39.⁹⁹ monthly access or higher and a data feature of \$44.⁹⁹ monthly access, or on any new Voice and Data Choice BundleSM plan of \$79.⁹⁹ monthly access or higher.

Verizon Wireless introduces the BlackBerry® 8830 World Edition. It's the first CDMA World Edition smartphone capable of roaming globally on GSM/GPRS networks. Work domestically or internationally, with access to email, phone, Internet and expanded memory capability. Join forces with America's most reliable wireless broadband network in enabling your employees to work from just about anywhere.

Get the BlackBerry 8830 World Edition | Visit a Verizon Wireless Communications Store | call 1.800.VZW.4BIZ/800.244.2443

Activation fee

SEE ALL OFFER INFORMATION subject to Customer Agmt, Calling Plan, rebate form & credit approval. Up to \$175 early termination fee & other charges. Offers not available everywhere. While supplies last. Shipping charges may apply. Rebate takes up to six weeks. Wireless broadband not available in all areas. Coverage limitations, maps & details at verizonwireless.com. America's most reliable wireless network claim based on lowest aggregate blocked and dropped connections. See verizonwireless.com/bestnetwork for details. © 2007 Verizon Wireless

When You're Onstage

CIOs—and the bosses who hire them—reveal what it takes to ace that critical job interview



By now, one might assume that all of you senior IT execs out there know how to conduct a job interview. After all, you had to succeed on some interview, somewhere. You wouldn't qualify for this magazine if you hadn't. Yet, every once in a while, after touching base with a candidate I've sent in for an interview, I find myself incredulous and asking, "You did what?! You said what?!"

It's at moments like this when I remind myself that interviewing—like cooking or speaking French—is a skill that gets rusty when you don't use it. For that reason, we can all use a refresher course once in a while to help tune up our interviewing skills. With the help of some CIOs who recently landed new jobs—and the bosses they impressed in their interviews—I'd like to offer some guidelines for doing an interview right.

Be prepared. Obviously, you want to know everything you possibly can about the company and the people who will be interviewing you. For a public company, you can find a bevy of documents online. For a private company, you have to work harder, but you can usually find its core values on its website. Armed with this information you can prepare for your interview by thinking about the connection you want to draw between those values and your own experiences.

Herbalife CFO Rich Goudis recently hired a new CIO for his company. He says he is sometimes surprised that candidates don't do more than read the company's annual report.

"Some people are just not prepared," says Goudis. "They don't take the time to find out who our key technology vendors are and then use their own connections with that vendor to learn about our approach to technology. Candidates who do good investigative research are impressive to me."



Outmaneuver.

Outsourcing from Accenture
can help you outperform the standard.

A large organization with the reflexes to react swiftly and synchronously is uncommon. But not impossible. Accenture starts with bottom-up outsourcing to make your technology and your processes run more efficiently. Then it brings to bear a top-down strategic perspective to help ensure full

alignment of those systems with the overall business agenda. Nimbleness increased, reaction time decreased. For more, visit accenture.com/outperform

>
accenture

High performance. Delivered.

• Consulting • Technology • Outsourcing

But not too prepared. Jonathan Rider, the new CIO of building company Gilbane, agrees that it is critical to be well-prepared, but he cautions against too much of a good thing.

"If you walk in and start giving them five years' worth of stats on their sales and market value, they will look at you cross-eyed and think, 'This guy can read an annual report,'" he says. "You should have all of that knowledge, but you want to apply it in a sparing, as-needed way."

In other words, don't spew a bunch of facts and figures related to the business. Instead, choose a few choice stats and then bring them up in a context that showcases your understanding of the business and the challenges it faces.

Candidates also frequently ask me if they should bring any documentation of their work to their interviews: PowerPoints of great IT strategies, a set of best practices they developed. My suggestion is to bring it with you—but don't pull it out and discuss it unless the situation warrants. Some interviewers love to look at documents, some don't. Just because it is in your briefcase doesn't mean you need to use it. Feel out the situation first.

Treat the interview like your first 100 days. "I have this trick I use in interviews," says Rider. "There are all these articles about what a CIO should do in the first 100 days on the job: what questions to ask, what relationships to build. I conduct the interview like I have the job and am conducting my first set of meetings."

Rider finds that his questions work as an ice-breaker that puts the hiring manager at ease. The interview becomes more of a consulting session and allows the interviewer to imagine Rider in the role.

But don't start solving their problems. For John Ruggieri, CFO and Rider's new boss at Gilbane, Rider struck the right tone between asking questions and providing answers.

"I am not impressed with candidates who claim that they can change our world before they even understand our business," he says. "They do

all of their homework and start talking about what kinds of systems they're going to put in before they even know our industry. That al-

ways blows me away. Jon was not like that. He made it clear that he would take his time in understanding our business before acting."

Prepare success stories. One thing I advise all of my candidates to do is to prepare five success stories with three bullet points each. This tactic gives them a premeditated, clear and structured way to articulate their accomplishments.

Chuck Sperazza, the winning candidate for the CIO role at Herbalife, takes this approach a step further. "Take the major aspects of the job, like leadership, strategy, execution, performance management and risk aversion, and build a brief story

Interviewing—like cooking or speaking French—is a skill that gets rusty when it's not in use.

from your experiences around each issue," he says. "Most of the executives who are interviewing you are not IT people, but they understand the major elements of executive leadership. You can use your stories as a way to relate to them."

Dig for the detail. One piece of negative feedback I often hear from a hiring manager after an interview is, "I had a hard time getting him to give me specific details on a project," or "She stayed at a very high level when I asked for specifics."

When your interviewer asks you to "Tell me about a time when you had to deal with a performance problem," resist the urge to slip into an "advisory mode" that has you answering, "When you have a performance problem, what you should do is A, B and C."

If you are asked to recount your own experience, stick with the first person and provide granular detail to support your response. CIOs are so often called upon to be advisers or consultants that they often have trouble sticking with their own experiences.

Have a great answer to "why are you interested?" If I had asked my husband, after he proposed to me, "Why me?" and he had responded, "Because you're a girl and you live close," I might have given him a different answer. Interviewers want to hear that a particular job is extremely attractive to you for some very concrete reasons.

"Sometimes I'll get these lame answers about why a candidate is here," says Herbalife's Goudis. "It's close to home,' or 'I want to make more money.' That kind of indecisiveness will not get you the job."

And when the interviewer asks why you would leave your current job—or why you're currently unemployed—just keep it short and sweet. One or two sentences that are matter-of-fact will do, not a soliloquy on the injustices of the evil corporation that wronged you.

Don't go for the close. At the end of an interview, should you go for the jugular and try to close the deal? Some recruiters recommend that you do a "soft close" and use some probing questions to learn the status of your candidacy. I strongly disagree, and Goudis backs me up.

"I would rather have someone show self-confidence that they did well on the interview than have to ask me about it," he says. "If you've set a world record, the crowd will cheer." **CIO**

Martha Heller is managing director of the IT Leadership Practice at ZRG, an executive recruiting firm based in Boston. Reach her at mheller@zrgroup.com.



Join the Conversation

Respond to Martha Heller's latest online column by visiting www.cio.com/author/41283.

CIO.com

Advertising Supplement

Business Continuity

How to Raise the Bar 2007

Insights and Action
Items from the Latest
Market Research



Custom Solutions Group



Custom Solutions Group

SUNGARD
Availability Services

Keeping People
and Information
Connected.™

Inside

- The Business Continuity Agenda
- Executive Guide to Exclusive New Research
- Resources to Shape Your Business Continuity Strategy



The Business Continuity Agenda: 2007

In conjunction with the inaugural Business Continuity Forum, we've conducted new market research on the topic, and the results are a mixed bag.

On one hand, we've never been better prepared. We have better systems than ever, and our processes and people are eminently prepared to mobilize in the event of natural, man-made or pandemic disasters.

On the other hand, the stakes have never been higher. Never has so much business been dependent on so many disparate technologies, any one of which holds the potential to cripple a business if—when—disaster strikes.

And with so much at stake, never has there been greater pressure to support more stringent recovery time objectives (RTO) and recovery point objectives (RPO)—yet with little if any additional investment in business continuity personnel or resources.

The survey numbers are striking. Asked if they'd recently encountered at least one disruptive event to their business systems—power failures, network outages—92 percent of respondents said yes. Yet, when asked to self-assess their organizational readiness for general disasters, these same business leaders gave themselves at best a C+/B-.

The overwhelming message is that while the demand for robust business continuity has never been greater, funds are still scarce—and so are staffing, sponsorship and proper testing. Read on to learn more about the survey results. On the following pages, writer Sam Greengard examines the numbers and explores their ramifications.

In addition, SunGard Availability Services, our survey's exclusive sponsor, offers a case study of one of its customers, Hx Technologies, and we've compiled some resources for you to learn even more about business continuity.

It's a hot topic already, and it's only going to get hotter. The trick is not to get burned by business continuity issues. We're here to help.

Best regards,

Gary Beach, Publisher, CIO

Bob Bragdon, Publisher, CSO

RESOURCES

For more information about business continuity issues:

The Business Continuity Planning Association (BCPA): www.bcpa.org

Business Continuity Planning Guide: www.yourwindow.to/business-continuity/

Limiting IT Downtime Window Major Concern (SunGard): www.availability.sungard.com/limiting_IT_downtime

Key Considerations for Disaster Recovery Planning (SunGard): www.availability.sungard.com/DR_planning

Business Continuity: How to Raise the Bar 2007

Making the Grade

Capabilities are greater than ever—but so are the business demands, according to new research.



The data residing in servers and computers systems has emerged as the currency for the 21st century economy. When the flow of data is interrupted, a business or other institution may find itself staring down the barrel of lost sales and diminished productivity. It may also face regulatory and compliance problems—as well as a loss of trust on the part of customers, business partners and employees. In some cases, public health and welfare hang in the balance.

Business continuity is a growing concern for CIOs and other business leaders. While there's a greater awareness that companies must keep systems running and meet recovery time objectives (RTO), translating concerns into an actionable strategy can prove daunt-

ing, especially in an era of tight budgets, limited management sponsorship and complex technical issues. More than a few organizations have discovered that business continuity isn't an option, it's a necessity.

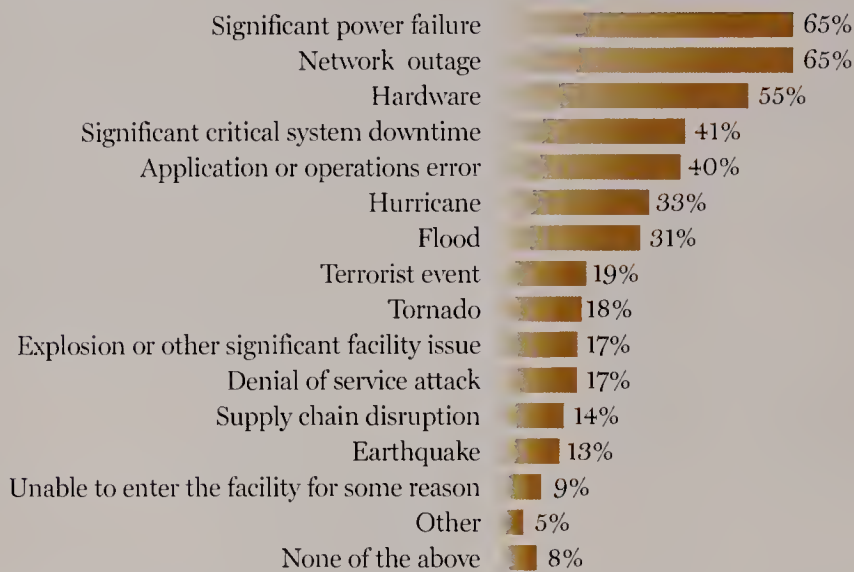
"It is essential to have a recovery plan in place and understand what recovery time objectives and recovery point objectives (RPO) are required for various applications and services," says Donna Scott, vice president and distinguished analyst at Gartner, Inc. During the 1990s, a three-day recovery window was typical. By 2001, one day was common. Today, due to customer and end user demands, "We're seeing a greater need to [establish] recovery periods that range from immediate to four hours. This puts incredible pressure on an organization—and

creates additional challenges," Scott points out.

It's a concern shared by a growing number of business and IT leaders. IDG Research and SunGard recently surveyed 215 executives who manage business continuity and found that there's more to the subject than meets the eye and pocketbook. Budgeting, development, testing, communication and updating plans and systems are all key components that respondents cited. And while organizations approach business continuity in markedly different ways—many believe that their processes and performance do not measure up. Less than one in ten are confident of their ability to deal with a potential disruption.

Too often, organizations use

Nearly two-thirds of companies have experienced a significant power failure or network outage that had a direct impact on business.



Source: IDG Research 2007

the previous disaster or disruption to plan for the next one. They fail to analyze the probability of various scenarios and do not take into account real-world risks. "In many instances, the full value of protecting the business isn't fully understood until a disaster occurs," says Patrick Doherty, Executive Vice President of Marketing at SunGard Availability Services. "Business and IT executives must be on the same page when it comes to developing systems and processes that support business continuity."

Avoiding Downtime

An overwhelming 92 percent of respondents indicated that they have encountered at least one disruptive event to their business systems. Yet, while high-profile disasters such as earthquakes and hurricanes garner attention, they also distract business and IT leaders from the most common problems: 65 percent of respondents reported disruptions due to power

failures, 65 percent listed network outages and 55 percent mentioned hardware failures.

Increasingly, business continuity centers on "information availability" and operating an "always on" network. This shift in thinking away from cataclysmic events and toward more mundane but common threats such as power failures and network outages began to take hold about five years ago. There's a growing realization that focusing on natural disasters and terrorism diverts attention from the realities

organizations rely on legacy systems that can't keep up with today's business and computing demands. While survey respondents gave their organizations an average grade of C- for pandemic preparedness and a C+/B- for overall business continuity preparedness, Doherty believes that today's high availability business environment creates a de facto pass-fail system. "A company that rates itself B or below may not be equipped to recover from an event in the time required," he warns.

Moreover, flat to declining budgets for business continuity mean that many organizations have few ways to escape their problems. Nearly one quarter of respondents said that funding was a problem.

Another nettlesome area is keeping business continuity systems current and testing them on a regular basis. With acceptable downtime windows shrinking, it's no longer adequate to rely solely on tape backup systems or optical storage devices. Today, most companies require advanced recovery solutions that encompass data replication, mirroring, clustering and tiered

Organizations approach business continuity in markedly different ways — and many believe that their processes and performance are less than ideal.

of today's business environment and the deteriorating state of the typical IT infrastructure.

Remarkably, a typical large enterprise data center is approximately 17 years old. In fact, many

storage. "It's really a matter of understanding which systems and applications are most critical and then aligning the solution to meet the recovery time objective for each of those individual systems and ap-

plications,” Doherty explains.

Edward Waters College, a private institution in Jacksonville, Florida, is among the organizations

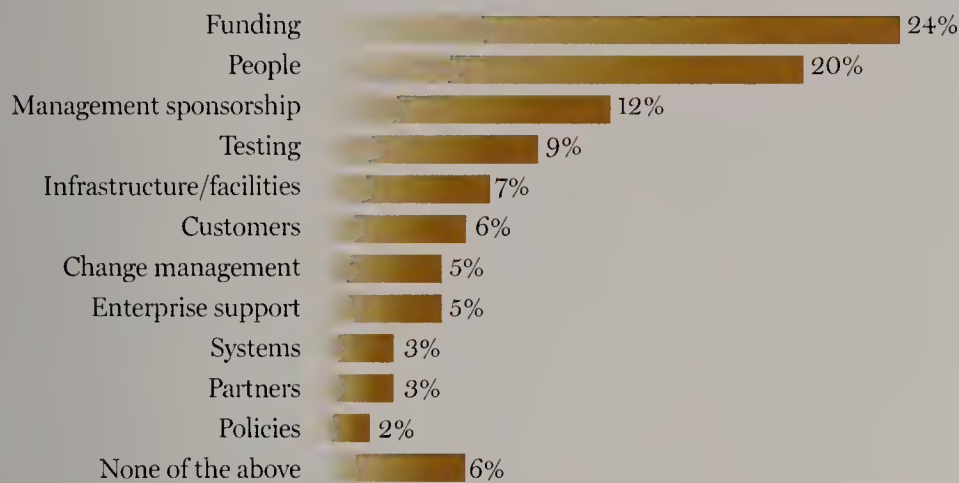
tives play a key role in defining strategic needs, other departments—including finance, human resources, operations and legal—must help

a business continuity plan works, including phone or e-mail trees and emergency policies. More advanced notification software and services make it possible to automate the process across different devices and systems, including e-mail, phone, mobile phone, text messaging and PDAs. However, 44 percent of survey respondents indicated that their companies never communicate the overall business continuity plan to all employees. Approximately 59 percent of respondents do not articulate their organization’s business continuity plan to key external shareholders.

Regular and ongoing testing.

It’s impossible to understand how systems function—and how employees use them—without ongoing testing and monitoring. An organization might evaluate systems every quarter or every other year, depending on its requirements. “The key is to remain vigilant and ensure that the required level of resiliency is in place,” Doherty notes. Simply having machines turned on and ensuring that systems are operating is not enough. An organization

“Funding” and “people” are identified as the most challenging components of business continuity planning.



Source: IDG Research 2007

that emphasize planning. CIO Bernard Chapple says that the school is constantly working to “upgrade equipment and raise awareness.” A plan, he says, can be specific, “but you will never have something that addresses each and every scenario. However, you can use that as a model or a paradigm—and if an event comes up that is unique or does not [fit] the program, you can always modify it or make adjustments.”

Beyond Backups

Effective business continuity is far more than the sum of effective backups and data replication.

Key components include:

A sound plan and well-defined policies. Effective business continuity requires different departments and constituencies to understand the value of data and how it fits into the company’s portfolio of products and services. Although IT execu-

define and formulate policies and procedures. Various departments must provide input when an organization formulates business continuity strategies. Otherwise, the organization may wind up pursuing a tactical approach that misses the mark.

Effective communication.

It’s essential to ensure that various constituents understand how



For More Business Continuity Resources

Visit www.cio.com/sungard/research to read a complete research brief on the new IDG/SunGard Business Continuity study, and check out www.cio.com/sungard for additional strategies and solutions relevant to this key topic.

must establish how employees will get to systems and data during an outage or emergency. They must also ensure that proper security safeguards exist.

Adequate budgeting. Despite the fact that only 6 percent of IT budgets are allocated to business continuity, one quarter of the companies surveyed indicated that they would increase their spending in this area—by 53 percent on average. Moreover, 72 percent of organizations report that they will keep spending stable. However, with recovery time objectives dropping and recovery point objectives becoming more complex, the status quo may not be good enough. An IT infrastructure must be flexible enough to handle changing conditions and requirements. By evaluating total cost of ownership (TCO) and conducting risk analysis, it's possible to develop a focused strategy for managing business continuity.

"Business and IT executives must be on the same page when it comes to developing systems and processes that support business continuity."

—Patrick Doherty, Executive Vice President of Marketing, SunGard Availability Services

Periodic updates and upgrades. Business continuity is an ongoing evolution that requires constant adaptation. As applications, data requirements and capacity change, what was once a seamless solution might become a liability and risk. Although it's vital to test systems for availability and ensure that

they function effectively, it is also essential to keep the entire infrastructure up to date. Best practice organizations use a task force or cross-functional teams to oversee the initiative and rely on consultants and third-party integrators to provide analysis and assistance. As the business changes and grows, the need for redundant hardware,

multiplatform integration, core data protection tools and application-specific support for backup and recovery grow.

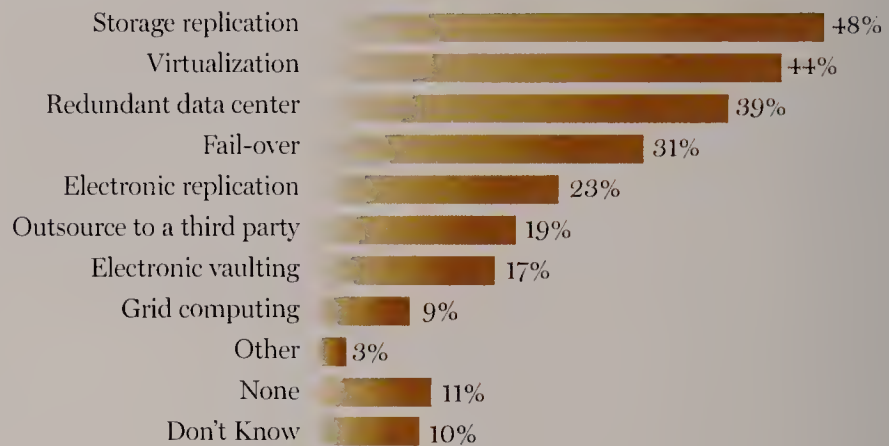
A Healthy Recovery

Business continuity is a complex endeavor that continues to garner attention from business and IT

leaders within organizations. Nearly 80 percent of survey respondents indicated that they are considering or evaluating technology or services to enhance or replace their current business continuity solution. Leading approaches include storage replication, virtualization, redundant data center, fail-over and electronic replication.

Finally, a growing number of organizations are focusing on compliance issues and fanning out efforts to include non-traditional types of business continuity, including the threat of pandemics. This is helping them build data centers that support their business objectives and inspire confidence among customers, employees and business partners. Says Gartner's Scott: "Business continuity is an ongoing process that requires constant attention and resources. Organizations that put the right systems and processes in place not only gain protection, they're able to achieve a competitive advantage." *

Nearly 80% are considering or evaluating technology or services to enhance or replace their current business continuity/disaster recovery solution.



Source: IDG Research 2007

Case Study

Information Availability Central to Success of Access to Healthcare Data

"Our whole business model is predicated on information availability and continuity. If doctors can't get the patient record they need, it's a huge lapse in service. From the inception of our business, we knew that continuous and secure access to patient records would be one of the make-or-break factors in our offering to the healthcare community," says Joe Murray, VP of Technology, Hx Technologies.

Hx Technologies understands the importance of healthcare organizations having secure access to patient care records—when and where they need them. The company builds and operates health information exchanges that electronically link area hospitals' records and give providers the ability to access critical patient data on-demand, such as X-rays, CT scans and MRIs. Their success lies in the ability to provide immediate access to a patient's records when and where medical personnel or health plans need it. And it's crucial to have that access to patient healthcare data 24/7/365.

To provide the information availability and continuity necessary, Hx Technologies chose to house its back-end infrastructure and systems with third-party provider SunGard Availability Services.

Hx Technologies' systems are managed by SunGard Availability Services at one of its secure data

centers to safeguard the critical medical information that is intended for only authorized users of Hx Technologies' health information exchange.

In this way, Hx Technologies helps ensure the availability of critical care data, combined with optimum security. In the world of healthcare today, more and more medical information is connected, and physicians, patients, and health plans are increasingly relying on having immediate access to data.

"We had comprehensive criteria for selecting a service provider. The

constant availability of information was huge for us, but security was also of key importance. SunGard had the best security and audit methodology of any provider we considered—from physical site access and data security capabilities, to options for services such as security risk assessment and penetration testing. Due to the sensitivity of the data we deal with, we wanted a partner who would put security front and center," said Murray.

"From our perspective, healthcare data are 100 times more sensitive and vital than financial data. Credit card and invoice planning can wait a few hours, but for a doctor who needs to access a report for an inbound trauma or stroke patient, information just can't wait—that person's life may depend on it. That's been our mission from the start, and information availability is central to our success."



www.hxti.com

Hx Technologies (HxTI), based in Philadelphia, works with healthcare payers, providers and regional health information organizations (RHIOs) to provide real-time, web-based access to a patient's full set of diagnostic images and reports typically scattered out of reach across multiple healthcare facilities.

HOW TO EXPECT THE UNEXPECTED



Quick, take a snapshot. Suddenly part of your IT infrastructure is inaccessible. What happens to your business?

SunGard's advanced recovery solutions help get you back up and running. Fast. We provide extensive options to fit your exact requirements, from tape or disk backup, to data replication, mirroring, hotsites, mobile solutions and more.

Meet your objectives with confidence. For over 28 years, through 2,100 recovery situations, we've delivered a 100% success rate. With solutions that achieve precise recovery timeframes, locations and data points.

And you can maintain that control as your business evolves. With access to some of the most extensive data, system and network resources available anywhere. Reach higher levels of Information Availability, at a fraction of the cost of building the infrastructure yourself.

The right solution for today. Strong preparation for tomorrow. Let SunGard show you how to expect the unexpected.

SUNGARD® | Keeping People
Availability Services | and Information
Connected.™

680 East Swedesford Road, Wayne PA 19087
800-468-7483 | www.availability.sungard.com

BE PREPARED. FOR A FREE COPY OF "SUNGARD'S PANDEMIC PREPAREDNESS CHECKLIST"
VISIT WWW.AVAILABILITY.SUNGARD.COM/PANDEMIC OR CALL 1-800-468-7483.



"A CIO should be enabling a business to grow."

Louie Ehrlich

VP of Strategy and Services & CIO of Global Downstream, Chevron Corporation

CIO Executive Council Member

(Source: Wall Street Journal, February 20, 2007)

Members of the CIO Executive Council believe it's up to CIOs to seize the opportunity to fulfill the potential of their position and play a key role in growing their businesses. These members created the new Future – State CIO Program to advance both business and the community of CIOs toward this objective.

Order your Future – State CIO kit to sample the unparalleled assessments and resources available through this initiative. Visit www.cioexecutivecouncil.com/futurestatecio today.

CIO Executive Council

The Professional Organization for CIOs

The CIO Executive Council was created by readers of *CIO* magazine and leaders within the community of CIOs to leverage the individual and collective strengths of its members to serve as unbiased and trusted advisors to each other, and to advance the CIO profession and its role in driving shareholder results for their respective organizations. In just three short years, the CIO Executive Council has grown to more than 480 CIOs worldwide, representing executive leadership in organizations with approximately \$2.5 trillion (USD) in annual revenues.

Founded by



Business
Technology
Leadership

For information on membership, please visit www.cioexecutivecouncil.com.

Virtual



Tom Sanzone, CIO of Credit Suisse: "I believe that virtualization technology is a game changer."

Virtualization POSSIBILITIES

Smart CIOs are using virtualization for much more than data center consolidation. They're becoming masters of flexibility—delivering results for the business like lightning-fast provisioning and greatly improved disaster recovery.

BY THOMAS WAILGUM

Reader ROI

- :: Why you should think beyond data center consolidation
- :: How to explain virtualization to the business side
- :: How CIOs are improving their results

There isn't much about Tom Sanzone that bespeaks drama.

The CIO of Credit Suisse is direct, meticulous and practical, and it doesn't seem as if he'd suffer fools gladly, an impression partly informed by his New York accent, nearly shaven head and confident demeanor.

But ask him what virtualization has helped him deliver to Credit Suisse, and you'll get a dramatic answer: tremendous results. He's not just talking about savings reaped from data center consolidation—which was what the first wave of virtualization projects was all about. Sanzone and other leading CIOs are taking virtualization to the next level. They're using it to become the fast, flexible business partners that CEOs have always wanted.

One example: Virtualization has radically changed the way Sanzone's IT group delivers computing power to the company's application-hungry line of business units.

The old process of allocating a server box for a business unit—including purchasing, provisioning and configuring the hardware—took weeks or months. Now, Sanzone says, with his growing number of virtualized servers, "it can be done in one day.

"And we want to move to be even quicker."

This, he notes, is the kind of benefit his business partners understand loud and clear. "They can see the impact of this type of technology and



what it can mean to the business," he says. Such as? "Such as a quicker time to market for the products that they need, competitive advantage and driving revenue growth."

Virtualization, he continues, "is a beautiful combination: It's cheaper and offers a lot more capability."

Sprung out from server farm savings and spreading to Credit Suisse's four core business units, virtualization has become a central piece of the \$67 billion financial services company's future.

Stephen Elliot, a research manager in the enterprise systems group of IDC (a sister company to CIO's publisher), says this piece of technology can be vital for CIOs who are struggling with the business side's expectations (one recent Forrester survey found that just 28 percent of CEOs think their CIOs are proactive business leaders). "Virtualization is an opportunity to strike more of a partnership with the business because you can drive out a more agile infrastructure and meet those [business] requirements faster," Elliot says.

CIOs and analysts agree that IT departments need to move beyond simple "data center consolidation" thinking. Virtualization can enable dramatically faster provisioning of equipment and computing resources, better chargeback systems and stronger disaster recovery capabilities. It all adds up to a more flexible infrastructure that's less a problem and more a solution.

"That's when a CIO moves from tactical to strategic," Elliot says.

First, Thou Shalt Save A Lot of Money

Like Sanzone, many CIOs have realized that virtualization is much more than a cost-saving tool. But almost every CIO's journey to a virtualized environment will start with a data center consolidation project—and big savings that provide a pleasant starting point with the business side.

Virtualization technology from vendors such as VMware (which owns about 80 percent of the Fortune 1000 market) acts as an "abstraction layer" between physical server boxes and the operating systems and software running on them. This means that up to 30 virtual servers can be housed on just one physical server, though that num-

ber varies widely from data center to data center (depending on how resource-hungry a company's applications are, for example). CIOs can then create a virtual pool of computing power, which reduces the need for a huge number of servers and allows for much better CPU utilization rates (which typically run anywhere from 5 percent to 15 percent) in servers. (For a tutorial on virtualization, see "ABC: An Introduction to Virtualization," at www.cio.com/article/40701.)

At Credit Suisse, Sanzone will remove more than 2,500 of the company's servers (which total more than 20,000) by year's end. In the development environment, he's been able to realize a 20-to-1 ratio for consolidating servers, meaning he consolidated 20 physical servers onto one new server. He's also upped utilization rates on those servers from some as low as 7 percent up to 40 percent.

In turn, he expects to save millions on reductions in maintenance, hardware

capital, networking, migration, real estate, and data center power and cooling costs. Credit Suisse is on track to reduce its data center power consumption by 1 megawatt by year's end—all courtesy of virtualization. (Recent virtualization research from Aberdeen Group shows that 83 percent of "best in class" companies have increased their server utilization rates, 57 percent have decreased capital costs, and 52 percent have reduced staffing overhead.)

David Siles, who is CTO of the Kane County government in Illinois, has realized massive savings since he started virtualizing in 2005. Those savings have come from a 30-to-1 utilization ratio, the elimination of 110 servers and licensing fees (more than \$100,000); server renewal costs that he avoided (\$370,000); and power and HVAC savings (nearly \$300,000). Siles says that virtualization has not only become a strategic piece of Kane County's infrastructure but, thanks to annual budget cuts, it is how

Virtual Desktops

Thin is in—again. Here's how the savings can add up.



UT ON THE EDGE of the virtualization frontier are IT chiefs like David Siles, CTO of the Kane County government in Illinois. In addition to his server virtualization, data consolidation and disaster recovery successes, which he started in 2005, Siles has embarked on an ambitious desktop virtualization project.

Siles is about a quarter of the way through deploying VMware's virtual desktop infrastructure to the county's user base, which accounts for 2,000 PCs.

Those users who have started to switch over, including administrative folks, politicians and sheriffs, use thin-client terminals that are hosted back in the data center on virtual machines. Although Siles says it's still early in the changeover to calculate exact savings, he will eventually be able to cut maintenance, hardware and service costs because everything is controlled inside the data center. For example, each terminal cost him \$600. But since he has been able to get 50 to 60 hosted desktops on each four-processor server, he has been able to cut in half each terminal's cost. And, he notes, terminals boast an eight-year lifecycle, rather than a four-year one for a PC.

In addition, his four desktop staffers no longer have to make service calls to the four corners of the growing county (which accounted for two hours of driving time, in most cases).

Those thin clients—especially the 55 mobile units—now pose less of a security concern. "We had a couple laptops stolen out of police cars," Siles says. "Now [with the virtualized thin clients], you essentially just lose a dumb terminal."

—T.W.

he's been able to provide "the same level of services to the county with less money."

In fact, if CIOs haven't virtualized at least a part of their server populations by now, they are woefully behind the curve. When Arch Coal CIO Michael Abbene began investigating virtualization products in 2006, "I tried to get a sense of who else was doing it," he recalls. "It turned out to be everybody."

According to IDC, 75 percent of companies with 1,000 or more employees are employing virtualization today. And more than half of the respondents to the Aberdeen Group survey on virtualization were using it in their production environments (meaning, everyday user applications), "a clear sign that end users trust that the technology is mature enough for mission-critical systems."

Data center consolidation is a critical first step toward unlocking virtualization's potential because it demonstrates to the business that IT can run more cost-effectively—slashing server costs plus tackling expensive power, cooling and real estate expenses. IDC says enterprises spend 50 cents to power and cool servers for every one dollar in server spending today (that number will increase to 70 cents by 2010), and new data center costs run \$1,000 per square foot. Abbene says that consolidation has enabled him to defer a major data center upgrade that would have cost him around \$400,000.

According to Abbene, as long as you don't overburden physical servers with too many VMs, you won't notice any degradation in application availability. And as long as applications are running just fine, "they don't need to know what box [their applications] are running on." Despite serious growth at the \$2.5 billion company over the past three years, Abbene reduced his overall budget by 10 percent to 15 percent a year, largely due to his server virtualization efforts.

In fact, Abbene says that at his company, many businesspeople have become enamored of the virtualization concept. "They'll say, 'I want a virtualized server,'" he says.

What the Business Doesn't Need to Know

That first win and proof of concept with

server consolidation invariably lead to more virtualization conversations, say CIOs and analysts. CIOs should seize on these second-round discussions to expand upon how virtualization can provide greater flexibility and speed in provisioning computing power to lines of business (LOBs), allow for greater utilization of idle CPUs, speed up business continuity and disaster recovery operations, and improve application and system availability.

But, experts and practitioners say, you should take it slow and keep it simple. That's because even many who work inside IT still have difficulty understanding all of virtualization's complex terminology—just imagine how your CFO or marketing VP will feel if you start discussing hypervisors and CPUs. (Hint: Eyes glazing over, furious typing on BlackBerry.)

"They have no idea what that all means," says Matt Wilson, vice president of IS at Chevy Chase Bank, which has \$14 billion in assets. "As long as [their servers] perform well, they have no input into it." When Wilson has moved Windows-based servers over to virtual machines in the

have become married to their servers. These executives are "server huggers," and they can be very territorial about their boxes. But it's those server huggers, and their demands for loads of computing power for their applications, who are one of the chief causes of server sprawl in the CIOs' data centers.

At Arch Coal, Abbene was feeling the heat. "We were just getting inundated—one application, one server, one application, one server, and it was again and again," he recalls.

He's tried to keep the virtualization conversations simple. "When I explained to management about virtualization as a concept, it was just as easy to say, 'You take 30 computers and run them on one,'" he says. Their response: "Oh, OK."

CIOs don't need to delve into the technological specifications of virtualization, as Sanzone and Abbene's examples prove. Businesspeople can easily understand getting their servers faster—from weeks or months down to just hours or one day.

Using VMware-based virtualization, AIG Technologies, which makes insurance-related IT products, has cut server

"We were just getting inundated—one application, one server, one application, one server, and it was again and again."

—Michael Abbene, CIO of Arch Coal

past, he says, "it's not something that we've advertised to the business."

In fact, IDC's Elliot says he's talked to some CIOs who have hidden the fact that they have virtualized their servers (and realized cost savings) altogether. "They don't want to spook anybody with tech jargon," Elliot says. In a rather subtle way, he says, it's conceivable that those CIOs who don't inform the LOBs about their virtualized savings are actually able to make a "profit" on those services because of the virtualized savings. "If you can get away with that," Elliot cautions.

This sneaking around is, in part, a response to the fact that some LOB chiefs

provisioning time by 50 percent—from six hours (when a physical server already was available onsite) to just three hours. Whereas provisioning a new server from offsite typically takes six to eight weeks, CIOs like Sanzone can now answer business requests for new server power with responses like, "How about tomorrow?"

Rewriting Recovery Rules

Clearly, virtualization is helping CIOs like Sanzone and Abbene develop a rep for being fast responders to the business. What about when the stakes are raised? Since the turn of the millennium, organizations have become more aware of their

need for better and more efficient business continuity and disaster recovery systems. More recent events such as 9/11 and Hurricane Katrina, as well as new governmental regulations about data handling practices, have only reinforced that need. For a growing number of CIOs, virtualization has become a valuable tool in being able to quickly restart business operations and applications in times of man-made or natural disaster, and keep IT service interruptions (both planned and unplanned system maintenance) to a minimum. IDC's Elliot says that the business continuity application of virtualization is "the next big iteration" as CIOs move forward.

Disaster recovery and backup operations have garnered much of the attention, simply because the time and cost savings CIOs can deliver to the business can be almost as dramatic as a flood or fire.

At the core, virtualization technology reduces the contents of servers to a set of files (called *file encapsulation*), which makes replication and restoration of all the contents much easier than traditional methods. In some cases, CIOs can reduce recovery time to just a few hours in a process that can be as simple as copying and pasting.

Chevy Chase Bank's Wilson is currently migrating from a backup process that includes having to manage loads of backup tape. He's found that the new virtualized system reduces a 20-hour recovery process per Windows server to 15 minutes for each of his virtualized blade servers. (Wilson has already been able to consolidate and virtualize his development group's 100 servers to 14 blades, which amounts to a 7-to-1 ratio of physical server to virtual servers; by the end of 2007, he will have moved 160 production servers to two blade centers.) He notes that a huge advantage for the bank has been the speed at which his group can recover a virtual machine after a disaster.

Wilson's now using a third-party company as his disaster recovery center, and his virtualized infrastructure has been strategic to the bank's operations. First, he's been able to cut his monthly disaster recovery costs because he doesn't have to own a duplicate set of hardware and all of its associated costs—the power and cooling costs that come from all of those idling CPUs just waiting for a disaster.

"The line of business is paying for what they're actually using. There's not a lot of fat in there." —Tom Sanzone, CIO of Credit Suisse

That's no small number: IDC says that there's \$140 billion in excess server capacity sitting around worldwide right now.

In addition, because it's easy to replicate the contents, Wilson doesn't need staffers to ensure that the data between the two locations is in sync and that configuration changes and updates have been made in both locations, which can be incredibly complex due to dissimilarities in hardware types at the locations. "It's a big time-saver," he says. When asked what the value of his efforts is to the business side, his answer is simple yet critical: "We can quickly recover business applications—that's the value."

In Kane County, one of two data centers sits on a bank of the Fox River in Illinois, vulnerable to flooding. Siles has ensured that both data centers can be easily and quickly replicated to each other using VMware's VMotion technology. That's crucial, Siles points out, because county emergency personnel use these resources.

At Arch Coal, Abbene's team has been able to reduce the time to recovery from six hours to two hours on virtualized servers that include active directory and base operating systems. "We've been able to speed up recovery, and we're reducing costs with our [offsite] recovery vendor because of the fewer servers that we need," Abbene says.

After businesspeople saw some of the disaster recovery results, they responded with a collective "Wow," he says. "They said, 'This is the fastest we have ever had this up.'"

A New Way to Pay

Speedy delivery and disaster recovery results grab the spotlight, but if you're thinking about virtualization strategically, you should also consider its implications for chargeback systems—results that business users may like more than you think, if you explain them well, Credit Suisse's Sanzone says.

"[Virtualization] does change the model significantly from the perspective that, his-

torically, the line of business was paying for the box," says Sanzone. "When you bought a box, it was yours. You have to evolve to buying for capacity."

Talking with businesspeople about disks, sharing CPUs and utilization rates can be challenging but not necessarily overwhelming. Sanzone says it actually gives his business peers more confidence that they are getting all that they pay for.

"In the past, if you needed more, you bought a new server. You put a system on it, with all that horsepower," he says, referring to the business chiefs. "However, you're going to get the feeling that you're paying a lot of money and leaving a lot of horsepower on the table."

At Credit Suisse, IT pays for all up-front equipment, maintenance, real estate and electricity costs associated with the LOBs' servers. The amount charged back to the business is based on a product price (for example, a server), which becomes a "fully loaded cost," as Sanzone puts it, when taken as a whole with the other expenses. With virtualization, those LOBs see a lower total product cost, due to the overall cost savings.

Overall, his business peers have accepted a new model of paying by usage. "It's a more solid story because of the fact that they're paying for what they're actually using," Sanzone says. "There's not a lot of fat in there."

Bogomil Balkansky, VMware's director of product marketing, says the "new" business and IT conversation often goes something like this: A LOB chief will come to IT and request a new server. The IT guy says: You can get a new physical sever in eight weeks, and will cost you 10 grand. Or, we have this

Rules and Tools

For advice on managing the everyday tactical issues of virtualization, like balancing server workloads, see **HOW SERVER VIRTUALIZATION TOOLS CAN BALANCE DATA CENTER LOADS** at www.cio.com/article/117256.

CIO.COM

new thing called a virtual machine, and it does the same thing, it won't crash, and you can get it tomorrow. And it will cost you a thousand dollars.

"The business typically has this 'show me' attitude" when it comes to new technologies, Balkansky says. "But we're finding that businesspeople who were once skeptics [about virtualization] are now ardent about it."

Sanzone has found that as well, recounting a recent conversation one of his deputies overheard between two Credit Suisse COOs. One of the COOs was extolling the benefits of server virtualization to the other—with no IT person in the room.

One caveat: Sanzone says the business side's newfound expectations are rising. "Once this is fully burnt in, there'll be expectations to deliver even faster," he says. "They'll forget what it was like in the past."

Virtualization 2.0

It's still very early in what some industry watchers call the Virtualization 2.0 era, when companies move beyond simple server consolidation. Gartner reports that the total number of virtual machines deployed worldwide reached just 540,000 by the end of 2006, which is "a fraction" of the potential market.

Gartner predicts more than 4 million virtualized machines by 2009, and that by 2010 virtualization will be the most important technology in IT infrastructures and operations, "dramatically changing how IT departments manage, buy, deploy, plan and charge for their services."

Bearing that out, CIOs interviewed for this article say they see a starring role for virtualization in how they manage how LOBs receive compute power—for example, at peak times near the end of a fiscal

quarter, when accounting is churning lots of numbers.

Sanzone's keenly interested in the capacity management capabilities of his development group's virtualized servers. Using the trending and historical data on the servers, it's not a stretch for him to envision how IT will dynamically manage business servers and applications during those peak times.

The goal, as Sanzone describes it: a virtualized "on demand" IT services model that lets the business access the computing power it needs (using self-service and self-provisioning capabilities) when it needs it, and pay for the services via a strict usage basis (returning the capacity to the data center when it's no longer needed). That means, Sanzone says, IT can deliver world-class services that precisely match the speed at which the business wants and needs to move.

In addition, this environment will allow Credit Suisse to break the link between physical devices and capacity, and the traditional distributed computing model of one application to one OS to one server. "It enables us to be faster to market at a more commercial price point," he says, "while simplifying our environment." It boils down to fewer servers, better managed.

Sanzone cautions that this is a work in progress for Credit Suisse, and it will have to meet rigorous business requirements and standards before he rolls it out to production servers. Arch Coal's Abbene also wants to develop that capability in his data centers, saying, "It will allow us a degree of flexibility that we didn't have before."

For both of these CIOs in very different industries, virtualization capabilities translate into a more strategic and aligned IT department.

"Innovation is the compass that guides us as we seek game-changing technologies that don't just improve what we do but at times reinvent the way we deliver our products and services to our clients," Sanzone says.

"I believe that virtualization technology is a game changer." **CIO**

What About Microsoft?

Redmond's answer to VMware remains under wraps

WHILE VMWARE IS THE CLEAR LEADER in the virtualization technologies space, Microsoft has been lurking in second place for several years. But just what is it up to?

As noted in a recent report from 451 Group analyst John Abbott, in 2005 Microsoft announced its own hypervisor product, called Viridian, which would ship alongside Microsoft's release of its Windows Server 2008 (also known as Longhorn) and would be a "serious threat" to VMware. Eighteen months later, Abbott writes, things don't seem to be looking so good. "A promised public beta delivery of Viridian has been delayed to the second, rather than the first, half of 2007, and some key performance and scalability features will be held back to meet the shipment schedule." (Microsoft has stated it plans to ship Viridian within 180 days of shipping Windows Server 2008.)

Abbott's overriding question: Will Microsoft put up a significant fight, or is it already too far behind? Although there have been some technical snafus, Abbott predicts that if Viridian is "tightly bundled with the next generation of Windows, the company will win business by default." That's because Microsoft has its operating system and applications (SQL Server and Exchange) franchises to leverage, he notes. "Making virtualization a component of these existing offerings could squeeze out competitors," he writes.

CIOs interviewed for this article say they're interested in what Microsoft's plans are but are content to wait and keep using VMware's products. "VMware's ESX server product," says Matt Wilson, VP of IS for Chevy Chase Bank, "is the only enterprise-class solution right now."

—T.W.

Senior Writer Thomas Wailgum can be reached at twailgum@cio.com. Send feedback on this article to letters@cio.com.

The Buck Starts

What you say about your budget—and how you say it—sets the course for your IT department. Here's how to make your budget presentation more effective.

**BY
MICHAEL
FITZGERALD**

When he presents his technology budget to senior management, Edward Granger-Happ likes to talk about a '57 Chevy.

"I tell them that we have to polish it and take care of it, and [because] it's a '57 Chevy, we're living on borrowed time, especially if we're using it for the daily commute," says Granger-Happ, CIO at Save the Children.

The spiffy car is a metaphor for a legacy system in use at the foundation, and it helps Granger-Happ make several points. First, it puts the old system in a context everyone on the business side understands. Second, it helps him make the argument that systems not only come with maintenance costs but that those costs grow (and take up more of his budget) as the systems age. Third, he can tie maintaining or replacing the "Chevy" to his strategic IT plan, priming the group for a future discussion.



Advanced COMMUNICATIONS

“The Buck Starts Here” is part of an occasional series titled **Advanced Communications**. These articles feature practical advice designed to help you improve the communication skills you need to succeed as managers and leaders. Find the series online at www.cio.com/article/41181.

THE BUCK STARTS HERE

Granger-Happ says his approach to talking about the IT budget usually gets him what he wants at the \$400 million non-profit. His budget for the coming year is \$4.7 million. But he also knows that when the foundation sees fund-raising tighten, as is the case for the coming fiscal year, he knows he won't get major new initiatives funded, and he doesn't ask.

Though it may take up less than an hour at the executive committee or board meeting, the budget presentation is one of the most important messages a CIO has to deliver. What a CIO says and doesn't say—during both the actual presentation and in the months leading up to it—sets the course for IT not just for the next year but, where new investments are concerned, for years to come.

Yet despite its importance, few elements

of such a presentation are universal. What matters in a budget presentation depends on the priorities of the company and the personalities of the CEO, the CFO and the board. That said, all successful budget presentations do need to make a clear business case for spending and especially for new initiatives, and CIOs had better have support lined up from the business units that should benefit. The presentation itself needs to be concise and free of technical jargon.

Granger-Happ also says to tread carefully without being too clever, recalling the once popular comparison between the relative cost of computers and cars. “You remember that comment that if cars were computers, Rolls-Royces would cost \$1,000 and get 100 miles to the gallon?” he says. “It was pretty easy for [someone] to come back and say, But they'd lock your

windows every other week and crash without warning.”

Here's how to make your next budget presentation a winning proposition.

Do Your Homework

For many CIOs, the budget presentation itself is anticlimactic because the budget has already been debated thoroughly during the preparation phase. By the time the CEO sees it, there should be no surprises on either side of the table.

Therefore, CIOs need to view the entire planning process as a chance to communicate with the business side. That means at minimum 60 to 90 days of parsing numbers, organizing projects and setting priorities. The CIO should spend some of this time on diplomatic sorties like lunch meetings with the CFO or with department

CIO 100

SYMPOSIUM & AWARDS CEREMONY

August 19 - 21, 2007
La Costa Resort & Spa
Carlsbad, California



innovation
without
boundaries.

in·no·va·tion (noun) a creation (a new device or process) resulting from study and experimentation—the act of starting something for the first time; introducing something new.

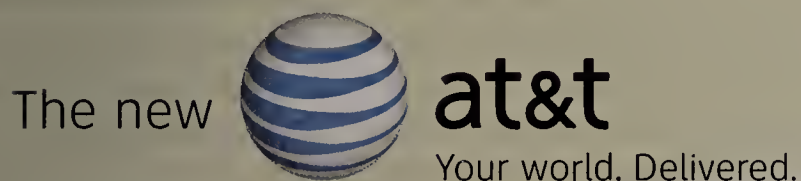
in·spi·ra·tion (noun) Stimulation of the mind or emotions to a high level of feeling or activity — the condition of being so stimulated. An agency, such as a person or work of art, that moves the intellect or emotions or prompts action or invention. Something, such as a sudden creative act or idea, that is inspired.

See how CIOs in every industry fostered, developed and implemented innovative ideas that challenged prevailing business models, shook up the competition and delivered ROI to the enterprise.

Come share your thoughts and discuss your challenges with some of the foremost experts and award winning CIOs in the country as we unveil the 100 winners of this year's CIO 100 Awards.

come be inspired.

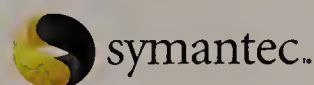
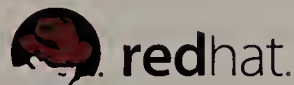
underwriter:



produced by:



official hosts:



sponsors:



For program details or to register visit www.cio.com/cio100_07 or call 800.355.0246.

heads, in order to size up specific priorities, preferences and potential trouble spots on which IT has an impact.

Susan Cramm, an executive coach who was both a CIO and a CFO (and is a *CIO* columnist), recommends CIOs break their budget into two categories: project-based services and utility-based services. Project services are typically simple to explain—these are the projects the business units want or will get obvious benefits from. Because they can be tied to business results, their purpose is typically clear.

Utilities cover things like the help desk, network costs, software maintenance, hardware and the like that constitute 60 percent to 70 percent of typical IT spending. “It’s a huge number, and that number is a mystery to the organization,” Cramm says. Thus, it’s also the number that causes the most tension between IT and the business side. “The CIO says, Why can’t you just trust me? Why wouldn’t you expect to have to maintain those systems?” Cramm says. “The business side says, That’s a huge, hairy old number—why can’t you explain it to me?”

She suggests CIOs present utility costs as if they were an outsourcer, on a per-department basis, whether it’s for e-mail usage, help desk calls or the network.

Some CIOs manage their budgets as portfolios of investment opportunities in order to lend structure to a budget planning process. Though it sounds complex, it can be done with a spreadsheet. “It helps you build a business case,” says Keith Kerr, a director at consultancy Robbins-Gioia.

Describing the IT budget as a series of investments that businesspeople can choose from is especially valuable when a company doesn’t have the luxury of normal planning cycles, notes Monte Ford, senior VP and CIO at American Airlines. During his six years as American’s CIO, the company has made a major acquisition, suffered through the teeth of an industry-shaking downturn, endured a recession and struggled with high jet fuel prices. Ford says his budget allocations may shift by as much as 20 percent in a typical year, and managing via portfolio helps him track all the changes. He also makes sure to give the CEO and CFO at least one budget update during the year, which helps the IT department stay on top of how the budget is changing over time.

Talk Business, Not Technology

First, avoid jargon. Instead, explain technology spending in terms the business side understands.

It takes discipline to avoid slipping into tech-speak. Granger-

It's Not a Budget, It's an INVESTMENT

Don't talk about spending money; instead, speak to results

Any conversation about the IT budget needs to get the CFO on your side. Avoiding technical jargon is smart, says Sam Silvers, principal and national service line leader with Deloitte Consulting’s financial management practice, because CFOs’ biggest complaint is that CIOs simply don’t speak the language of business.

But Silvers thinks CIOs should go even further and remove the word “budget” from their vocabulary.

“Budget is a cost-based thing—it’s not investment based,” Silvers says. His phrase for the keep-the-lights-on infrastructure spending? “Risk mitiga-

tion.” After all, what happens if you can’t send an e-mail because the company cut the budget for network upgrades?

He recommends that CIOs frame budget discussions in terms of how IT spending does six things:

- ⊙ Increases business investment;
- ⊙ Increases customer satisfaction;
- ⊙ Enhances the customer relationship;
- ⊙ Increases revenue;
- ⊙ Improves decision support;
- ⊙ Mitigates risk.

Vickie Barrow-Klein has had a CFO role at three organizations; her current job is vice president of finance and

information management with Save the Children. She says that all these ways of framing budget discussions are music to her ears, especially the idea of positioning infrastructure spending as risk mitigation. She cautions, though, that the specific language one uses should be tailored to the organization one works for. For example, in most organizations IT doesn’t generate revenue directly. So Barrow-Klein wants to hear about efficiencies. She notes that efficiency doesn’t mean doing more with less—“I’ve learned that with IT, it’s about doing more with more,” she says.

—M.F.

Happ tries never to get into the technical nitty-gritty during a budget discussion. For instance, when someone asks during a budget presentation how a wireless network will help achieve business goals, he avoids talking about its speed or range. Instead, because Save the Children wants to improve network access for 3,400 of its field workers, many of whom are in remote parts of the world, he talks about helping them connect more readily.

Paul Cavanagh-Downs, CIO at Aristocrat, a gaming concern based in Sydney, Australia, observes that getting technical gets you labeled as disconnected from the business.

“The businesspeople will often try to get into the technology, but it’s not a good thing,” he says. There’s no gain for a CIO to explain the differences between, say, a frame relay network and a multi-protocol label switching network (MPLS). “Even if you’re asked the questions, if you answer, you’ll still get labeled as being too technical,” he says. It’s happened to him, and he has business credentials as an accountant who became CIO after a long stint in finance.

Cavanagh-Downs says his tack for avoiding technical discussions during the budget presentation is to pause, then use his answer to reframe the question: What matters is not the technical difference between frame relay and MPLS, but which one offers the business better flexibility or scalability.

At American Airlines, Ford goes one step further and tables such inquiries. When businesspeople ask technical questions, he directs them to prepared reference slides. Meanwhile, Ford keeps budget sessions focused on the business by having his lieutenants who work most closely with American's business units participate in each business unit's budget presentations. That strategy lets Ford's department heads show off their business expertise and prove that IT's portion of the payroll is going to good use.

Ford does not rely on charts to illustrate the value of IT. "If I'm not doing my job in the eyes of my counterpart [say, the marketing executive], no function point analysis is going to tell him

And Don't Forget the Polish

Even though the budget presentation can be a pro forma event, it still has to be good. There aren't rubber stamps in budget discussions. When all is said and done, Ford says, he expects he'll be asked to spend slightly less than he's proposed. Closing the deal in your favor requires a polished performance. Use these tips to shine:

Be succinct. Kearns says that since he's become a CEO, he realizes how focused presentations need to be. "I have this board, and I have five times the amount of stuff for them than we have time to do." So Kearns has his CIO give him a detailed presentation about the budget, and then they talk about which things to highlight in the 30 minutes or so allotted to the budget discussion with the board.

Pace yourself. Naomi Deutscher, a presentation coach, encourages executives to speak quickly, but adds that it's also important to vary your pace. In particular, she recommends

The budget presentation itself is anticlimactic because the budget

has been debated thoroughly during the preparation phase.

Therefore, the entire planning process is a chance to communicate

with the business side.

otherwise," Ford says. Ford cites his current budget planning, in which one emphasis is faster turnaround on assignments. "We think we're pretty quick, and we're faster than last year, but there are a couple of business units that don't agree with that." So rather than argue back with charts showing how fast IT gets the job done, Ford's managers will explain how their plans will improve timeliness even more.

Some CIOs do, however, find that illustrating IT performance sometimes helps them make their case. Kevin Kearns, the former CIO and CFO (and now CEO) at Health Choice Networks in Miami, found budget benchmarks to be an effective tool for quelling unrest among the board members. As CIO, Kearns made sure the board of the community health center knew his spend-

ing, at about 2.5 percent of revenue, was below the industry average of 3 percent to 4 percent of revenue. The comparison helped him get his basic budget numbers passed.

pausing after a significant point has been made, or a new topic or slide introduced.

Use slides for emphasis. Deutscher advises that slides contain only a few lines of text—six at the most—and that CIOs use these as talking points rather than reading them off verbatim. Using color or bold text for important points or statements helps get the message across.

Get feedback. Practice giving a budget presentation beforehand, and, if possible, tape yourself. Then, after the presentation, "have a colleague tell you what worked about your content and style, and what didn't," says Deutscher. "People don't do enough to find out what people like and get feedback on what worked and what didn't."

But the annual performance is but one point in a continuous exercise. It requires strength in numbers and months of hard work, along with political savvy, corporate tea leaf reading and an understanding of the company's strategy and IT's role in it. **cio**

Michael Fitzgerald is a freelance writer in Millis, Mass. He can be reached at michael@mffitzgerald.com. To comment on this article, go to the online version at www.cio.com/article/104609.

Power Presentations

For tips on how to give better presentations, read **BITE THE BULLET: IMPROVING YOUR PRESENTATION STRATEGIES**, at www.cio.com/article/101504.

cio.com

The Fabric of the Company

The textile manufacturing industry shipped out a generation ago. But a midsize North Carolina company uses IT to bring the profits of globalization home.

BY C.G. LYNCH

Glen Raven CEO
Allen Gant Jr. says his ability to get the data he needs to make decisions proves IT is aligned with the business.

PHOTO BY ROGER BALL

"If an IT investment concerns innovation and new products and services for customers, then it gets a very high mark. If it's to squeeze another penny out of operations, then that probably has a very low priority." —Glen Raven CEO Allen Gant Jr.

After the Civil War, when John Q. Gant came home to central North Carolina, he took a job at a cotton mill in Altamahaw. Throughout the 1870s, he bought up shares of the mill, and by 1880 he owned it. Facing stiff competition from the mills up North, Gant invested heavily in the one thing many of his Southern counterparts had largely ignored: the best, most cutting-edge technology on the market. In the late 19th century, the company—today called Glen Raven and headquartered a few miles south, in Burlington, N.C.—became one of the first Southern mills to dye fabrics (most others sent their cotton up North).

In the 1930s, Glen Raven started using synthetic fibers and began knitting operations, which eventually led the company to invent panty hose in 1959. The company has never been content with standing still, either. Today, it claims to hold significant market share with its durable Sunbrella fabric, which is used for restaurant awnings and outdoor furniture. The private company has flourished globally even as North American textile manufacturers—in competition with Asia for a generation—have largely fallen off the map.

Today, John's grandson, Glen Raven CEO Allen Gant Jr., 59, continues to apply his grandfather's philosophy for success: Invest in technology, profit from it, then reinvest in more technology. Only now, IT is just as critical, if not more so, than the latest manufacturing equipment. The strategy is paying off for this mid-market company (which does not disclose its revenue). Glen Raven now sells products in 121 countries and has 2,800 employees. Gant talked with *CIO* Associate Staff Writer C.G. Lynch about how IT gives Glen Raven a competitive advantage.

CIO: Glen Raven has not only survived the migration of the textile industry away from the United States, you've been able to expand globally. How has IT enabled this growth?

Allen Gant Jr.: As an international business, we have operations in Western Europe, Eastern Europe, the Americas and

Glen Raven

Headquarters
Burlington, N.C.

Primary business
Textile manufacturing

Employees
2,800

IT executive
John Duncan
VP, corporate
information services

IT employees
25

Key technology vendors
Jomar
Oracle

Asia. The coordination of those businesses would be virtually impossible without IT. For example, we have a China operation that runs 24/7. It's a 190,000-square-foot facility in Suzhou that we opened in September of 2006. This facility is a marketing, sourcing, product development and manufacturing center for Glen Raven throughout Asia.

One of the plant's roles is the manufacture of Sunbrella fabrics, which are supplied to casual furniture makers with operations in China. IT is able to keep it up and running on a real-time basis from right here in Burlington. We run a comprehensive enterprise resource planning tool that enables us to manage every aspect of our business—from ordering of fibers for manufacturing through shipment and billing to customers. This tool assures the information transparency that we must have to manage a global enterprise.

We operate an Oracle database with Jomar software. Every decision we make is based on information available through ERP. And we never dreamed of that five years ago, just never dreamed of it. So from a logistical standpoint, imagine the beauty of being able to look into an IT system and know exactly what's coming off those production units all the time, how we can ship to customers, where we can source a product from. We satisfy customers with a matter of a click.

How do you know whether IT is truly aligned with your business?

I know that from when times are really difficult. If it's crunch time, you have to produce or you're going to lose the company. If you have a solid core in IT, which allows you to make the appropriate analysis very quickly, that's when you realize just how valuable your IT really is to the company. We can make the right decisions to improve all aspects of our company. We can analyze our purchasing decisions, including cost and cost elements; we can look at the delivery systems for orders going to customers; and we can review credit approvals and billing to our customers.

With this information in hand, we have optimized control of inventories and purchasing strategies and we have

"We're going to continue to invest in technology and innovation to make us the best there is. And you can't compromise there. Once you start compromising, you've lost the battle. Think about the signal that you send to all of your employees."

—Allen Gant Jr.

improved on-time delivery to customers. This capability becomes increasingly important when you are running a global business. During times of prosperity, everybody forgets that it took a lot of hard work and tough times to bring you to these really great times. There have been times in the textile industry when the whole industry lost money—just like the airline industry was a year and a half ago. Having our IT aligned with the business allowed us to move forward quickly.

How do you decide which IT investments to make?

If it concerns innovation and new products and services for customers, then it gets a very high mark. If it's to squeeze another penny out of operations, then that probably has a very low priority to us. Our company is certainly interested in operating efficiently and keeping our costs in line. For example, with the recent increases in natural gas prices, we have done extensive work to increase our energy efficiency. We have also developed a recycling system that finds new uses for much of our waste, such as converting textile wastes into insulation materials. Reducing costs, however, is only one part of the equation and not necessarily the most important part.

We have already reduced costs and automated virtually every function that can be automated. Our future growth and profitability, therefore, rests with innovative new products and services. We see so much more of an upside to inventing the next great fabric compared to savings achieved by sourcing less expensive supplies. As a privately held company, we have the ability to invest for the long term in products and markets where we see outstanding ROI potential.

Innovation is inherently risky. How do you make those risks acceptable?

We've never been greedy. We've never had to worry about what the stock market said tomorrow, what our shares sold for or what somebody else thought. We're going to

continue to invest in technology and innovation to make us the best there is. And you can't compromise there. Once

you start compromising, you've lost the battle. Think about the signal that you send to all of your employees.

The most important way to mitigate risks in IT is to screen your software vendors very carefully and work only with those companies that are financially strong with long track records of success. Second, it is essential to have a solid program of hardware backup and recovery capabilities. When we review proposed IT investments, our primary filters are information accountability and customer service. Do we actually need the information that we can create through a new investment, and will this information help us to serve our customers better? If both of these answers are "yes," then the project will likely receive a green light. With the costs of hardware and software coming down each year, it is much easier to mitigate the risk of IT investments, particularly when you determine early on that an investment will enhance your customer service. By following these principles, the issue of acceptable risks in IT has not been an issue for us.

Does John Duncan, your vice president of corporate information services, report to you?

No. He works through our CFO.

Why not have the head of IT report to you directly?

We asked that question point-blank. And we've decided to have it the way it is because our particular CFO, Gary Smith, is so involved with the individual businesses. He's not a bean counter. He is one of those rare financial experts with a deep appreciation for overall business strategy and our need to invest for the long term.

Gary has been with Glen Raven for about 10 years and participates in all key decisions. He works with the divisions on their needs and helps them understand the financial aspects of the business. Because he is so closely involved in the structure of the company, he helps ensure that we foster an environment in which it is easy for our associates to serve their customers. And so our IT guys say that they have exactly the right balance of people who are in favor of what they're doing. **CIO**

Find Out What the Boss Wants

Read about **WHAT C-SUITE EXECUTIVES EXPECT FROM I.T.** at www.cio.com/article/121600.

CIO.com

Associate Staff Writer C.G. Lynch can be reached at clynch@cio.com. Send feedback on this article to letters@cio.com.

the new cio.com

HOW TO

ADVICE &
OPINION

RESEARCH
& ANALYSIS

NEWS

CAREERS

MOBILE
mobile.cio.com

SOLUTIONS FOR TODAY'S
AND TOMORROW'S CIOs

- **new** design
- **better** search
- **more** peer interaction
- **faster** answers

join the
discussion at
[WWW.CIO.COM](http://www.cio.com)

cio.com
in the palm
of your hand



Business Technology Leadership

The Customer Is Your Business

Best Buy's CIO explains why delivering value through IT depends upon anticipating—rather than responding to—customers' needs

BY ROBERT WILLETT



In the United Kingdom, where I'm from, there is a candy called Rock. Sold as a souvenir, Rock often has a town name permeating the entire piece—so with Brighton Rock, for example, you can see the letters spelling out Brighton through the candy, from edge to edge. The same way you see that name through a piece of Rock candy, a CIO can see through an organization from end to end. In fact, I can't think of any role other than that of the CIO that touches every single facet of the business. So it's logical and imperative that the CIO's perspective and touch extend to the organization's end customer.

I spend 80 percent of my time focused on issues that have the external customer at their heart. The days are not completely gone when the role of IT was primarily to execute projects, but IT organizations have to do more than that. We've got to look at everything through the lens of customers both internally and externally, and help them get where they need to go with the aid of technology.

Admittedly, I have a different background from many CIOs. I have been a general manager and a CEO at other companies, plus I am currently the CEO of our international business group. Some may say that because of my experience, it's natural—or easier—for me to focus on the customer. But I find it difficult to understand how a CIO can do his job unless he understands the mission of the business and shares in developing it, just as a surgeon can't do his job if he doesn't understand how the whole body works. CIOs who don't participate in and influence what the business is trying to do for its customers only will develop technology that feeds or at best incrementally improves the status quo. If you really understand your business, you can help it leapfrog competitors and create paradigm shifts that differentiate your company.

Bridge the gaps
in your **DNS** infrastructure
with **NeuStar.**

DNS – DHCP – TRAFFIC MANAGEMENT

When you've already spent millions on a state-of-the-art network to support your critical business processes, and you're contemplating investing even more to realize the enormous economic benefits of IP-based communications, you need the very best DNS infrastructure.

NeuStar's suite of managed DNS services delivers carrier-class performance, comprehensive security, massive scalability, 24/7 monitoring, and expert support from developers and engineers – enabling organizations to focus on serving customers and growing their businesses. What's more, you'll retain complete administrative control over your DNS environment via our advanced management tools.

Let NeuStar help your organization scale efficiently and transition smoothly to the communications industry of tomorrow. Learn more at www.neustarultraservices.com or call toll-free (888) 367-4812.

Geeks, Pricing and RFID

At Best Buy we have to understand how our staff, whether our Geek Squad of computer technicians who make house calls or the blue-shirt staff in our stores, face off with customers every day. By understanding customer needs, we were able to develop scheduling, routing and dispatch systems for the Geek Squad that made them 100 percent more productive.

Here's another example of how important it is to understand customer needs and behavior. One of the critical factors when you grow a company to 1,000-plus stores is your pricing strategy: The prices you set are what allows you to stay ahead and drive value. So we developed a price optimization capability that implements pricing strategies by store location, delivering tens of millions of dollars per year. Finally there are emerging technologies such as WiMax and RFID that have the potential to fundamentally change retail operating models. It's up to us as CIOs to embrace these disruptive technologies and figure out how to use them to our customers' advantage. Imagine if customers could walk into a store, find everything they wanted, use a kiosk to select and pay for the items, and walk out of the store with their purchases without having to wait in a checkout line. That's the direction we're going in, and it will be enabled by RFID and WiMax.

However, it's not enough just for me to have a customer focus. Everyone on my IT team is embedded in the business, where they bring the lens of change through IT to bear on the customer value proposition. They participate in understand-

ing consumer attitude surveys, spend time in the stores and work with our merchandise suppliers, who are trying to find ways of being more effective with consumers. When we introduce a new product to the stores, each

store will have a different experience with that product. We encourage our people to post to an internal blog and share both the issue and the solution. This is the best way for 100,000-plus people to learn quickly.

Understanding the Global Customer

Our customer focus takes on complexity as we expand globally. Best Buy operates in China, Canada and Europe, and we'll expand to both Mexico and Turkey in the next 12 to 18 months. One mistake we don't want to make is to impose our U.S. operating model. You can't look at new countries through a U.S.-centric lens. You have to think like the local customer.

Best Buy carries out research, talks to other retailers about their customers and talks to customers about what they want. Among the differences we've learned: Customers in the United

Everyone on my IT team is embedded in the business. They spend time in the stores and work with our suppliers, who are trying to find ways of being more effective with consumers.

States are accustomed to touching everything—picking up telephones, switching things on. In China, everything is behind glass cases. The people in the stores in China are employed by manufacturers. These vendors typically hold the inventory and ship purchases directly to a customer's home, instead of having products in the store for customers to carry away. Thus, current systems in China have no capability of assessing stock availability on the sales floor, which has implications if we want to import the open display approach we have in the United States.

Knowledge transfer also works in reverse. For example, the Chinese expect much faster response to changes in technology. We change our telephones once or twice every 18 months, but in China, phones are a fashion item that customers change every quarter. Frequent phone changes mean we would have to encrypt and store customers' phone data so that they could go to the store and get all their information downloaded to their new phones. We can transfer such capabilities back to the United States, to improve our relationship with customers here. And so, going global isn't only about scale, it's about transferring skills and knowledge about customers across the enterprise.

The Chief Interconnectedness Officer

Strategic CIOs who focus on end customers have an opportunity to influence how their entire industry relates to them. Over the past 25 to 30 years, with help from IT, retail has shifted from mass marketing to personalized marketing. But I think we're moving into a different and even more exciting space that I am calling cocreation.

The journey for customers no longer ends at the store, it ends in the home. For example, consumers want to be able to link their PCs wirelessly with their TVs and audio systems. That's hard to do today. Best Buy's role as the ambassador of the customers is to represent their needs to vendors in order to cocreate solutions to this problem. It's my team's role to understand the issues customers have and to search for ways to improve their experience. The only way we can do that is to take the time to think like a customer. **CIO**

Robert Willett is CIO of Best Buy, CEO of Best Buy International and a CIO Executive Council member. To comment on this story, go to the online version at www.cio.com/article/118055.



More Strategic Competencies

Assess your strength as a CIO focused on external customers and watch the **CIO EXECUTIVE COUNCIL'S OUTLOOK SERIES** of videos with CIOs discussing other leadership competencies at www.cio.com/cec/strategic_cio/.

CIO.com

Introducing **CIO Mobile Alerts**

Breaking Tech Information, When You Need It Fast



TECH BUSINESS NEWS

SECURITY & COMPLIANCE

**SERVERS & DATA CENTER
MANAGEMENT**

**STORAGE & BUSINESS
CONTINUITY**

**MOBILITY & UNIFIED
COMMUNICATIONS**

Keeping up-to-date with the technology market has never been easier. When breaking news occurs, CIO sends a SMS message direct to your mobile phone. The text message is the headline, with the ability to read the entire story or listen as a mobile podcast. Alerts are sent only when breaking news occurs. Information when you need it, wherever you are.

Sign-up and begin receiving Mobile Alerts today: www.cio.com/alerts

Sponsored by

The new



50th Anniversary





SALES AND SERVICES

CIO SALES OFFICES

President and CEO
Michael Friedenberg
508 935-4310

Publisher
Gary J. Beach
508 935-4202

**VP, National Associate
Publisher**
Bob Melk • 415 975-2685

EAST COAST

Regional Sales Manager
Ellie St. Louis
201 634-2332

Senior Sales Associate
Norma Tamburrino
201 634-2329
Fax • 201 634-9513

NEW ENGLAND/CENTRAL

Regional Sales Manager
Brett Ferry • 508 935-4684

Sales Operations Manager
Dawn Cora
508 935-4092
Fax • 508 879-6063

SOUTHERN CALIFORNIA

Regional Sales Manager
Kevin Ebmeier • 415 975-2684

WEST COAST

Regional Sales Managers
Kevin Ebmeier
415 975-2684
Michelle Stutsman
415 975-2686

Account Executive
Derek Jung
415 975-2683
Fax • 415 543-2358

CUSTOM SOLUTIONS GROUP

Vice President
Matt Avery
508 935-4796

National Director, Sales
Adam Dennison
508 935-4087

Editorial Director
Jim Malone

Executive Editor
Tom Field
Associate Editor
Anne Taylor

Senior Project Manager
Amy Greenleaf

Project Managers
Karen Capland,
Amy Freeman

ONLINE SALES

Vice President, Online Sales
Brian Glynn • 508 935-4586

Online Regional Sales Manager
Richard Hartman
508 935-4487

Online District Sales Manager
Sara Mascal • 415 978-3385

**Online Regional Sales Manager,
West Coast**
Erika Karr
415 978-3329

**Manager, Online Account
Services**
Danielle Tetreault
508 988-7969

**Online Account Services
Specialist**
Valerie Sumner
508 988-7877

Online Advertising Specialist
Irina Gabechiia
508 935-4414

Online Ad Sales Associate
Devon Slattery
415 975-2687

**Online Account Services
Coordinator**
Hayley Nickerson
508 988-7819

LIST SERVICES

Contact Paul Capone of IDG
List Services at 508 370-0865
or pcapone@idglist.com.

REPRINT SERVICES

For article reprints (100 quantity or more), please contact
Keith Williams at PARS International at 212 221-9595 x319
or via e-mail at keith.williams@parsintl.com.

CIO is published in the
U.S. as well as in:

Australia, CIO Australia
www.idg.com.au

Canada, CIO Canada
cio.itworldcanada.com

China, CEO & CIO China
www.ceocio.com.cn

France, CIO France
www.idg.fr/cio

Germany, CIO Germany
www.cio.de

India, CIO India
91-80-521-0309/12

Japan, CIO Japan
www.idg.co.jp

The Netherlands,
CIO Netherlands
www.cio.nl

New Zealand, CIO New Zealand
www.idg.co.nz

Norway, CIO Business Standard
www.business-standard.no

Poland, CXO Poland
www.cxo.pl

Singapore, CIO ACEN/
Hong-Kong www.idg.com.sg

South Korea, CIO Korea
www.cio.seoul.kr

Sweden, CIO Sweden
www.cio.idg.se

For further sales information:
[www2.cio.com/marketing/
aboutcio/contacts.cfm](http://www2.cio.com/marketing/aboutcio/contacts.cfm)

CIO CONTACT INFORMATION

**Editorial, Advertising and
Business Offices:** CXO Media
Inc., 492 Old Connecticut Path,
P.O. Box 9208, Framingham, MA
01701-9208, 508 872-0080.

CIO (ISSN 0894-9301) is published semimonthly and as a combined issue Dec. 15/Jan. 1 by CXO Media Inc. Periodicals postage paid at Framingham, MA, and at additional mailing offices. Canada Publications Mail Agreement Number 1902075. CANADIAN POSTMASTER: Please return undeliverable copy to P.O. Box 1632, Windsor, ON N9A 7C9.

Permissions: Copyright 2007 by CXO Media Inc. All rights reserved. Reproduction of material appearing in CIO is forbidden without written permission. Send all requests to Yadira Pizarro, PARS International, 212 221-9595, Ext. 231, or yadira@parsintl.com.

Photocopy Rights: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by CIO for users through the Copyright Clearance Center, provided that a fee of \$3.50 per copy of the article is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01970. www.copyright.com. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡.

Subscriptions: CIO is free to qualified information executives. To apply, use our online subscription form at www.subscribe.cio.com. Subscriptions are also available on a paid basis at a rate of \$95 for the United States and Canada, \$195 International (payable in U.S. funds only) and may be ordered online at www.subscribe.cio.com/services.html. Or address inquiries to CIO, P.O. Box 489, Northbrook, IL 60065-0489; 866 354-1125. Please allow four to six weeks for a new subscription to begin. The single copy price is \$9 for the United States and Canada, and \$15 International. Prepayment is required, payable in U.S. funds.

Change of Address: Please go to www.omega.com/custsrv/cio and follow the online instructions.

Postmaster: Send change of address to CIO, P.O. Box 489, Northbrook, IL 60065-9816. Printed in the U.S.A.

INDEX OF COMPANIES AND ADVERTISERS

Page numbers refer to the first page of the article(s) in which the company has a substantial mention. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

COMPANY INDEX

123Together.com	21	Health Choice Network	40
2R Group LLC	30	Herbalife International of America Inc.	30
451 Group, The	34	Hewlett-Packard LP	21
Aberdeen Group	34	IBM Corp.	21
Adecco	21	IDC	13, 21, 34
Advanced Micro Devices Inc.	13	InnoCentive Inc.	3
American Airlines Inc.	40	Intermedia.net Inc.	21
American Express	26	Inveneo Inc.	13
American International Group Inc.	34	John C. Reece & Associates LLC	26
Apptix	21	Lenovo	6
Arch Coal Inc.	34	Microsoft Corp.	3, 6, 13, 21, 34
Aristocrat Leisure Ltd.	40	MuniWireless.com	13
Arthritis Foundation	21	National Baseball Hall of Fame and Museum Inc.	56
AT&T	21	Novell Inc.	21
Azaleos	21	Orange Business Services	21
Balanced Scorecard Collaborative	8	Pegasystems Inc.	13
Best Buy Co. Inc.	3, 50	Ponemon Institute LLC	26
CareGroup	6	Prominic.NET Inc.	21
Chevy Chase Bank	34	Rackspace Ltd.	21
Cognizant Technology Solutions	21	Riverwatch Inc.	21
Common Sense Advisory Inc.	21	Robbins-Gioia LLC	40
Connectria	21	Save the Children	40
Credit Suisse Group	34	Security and Exchange Commission	13
Dell Inc.	6	Sonic Automotive Inc.	21
Deloitte & Touche USA LLP	40	Starwood Hotels and Resorts Worldwide	13
Dimension Data	21	Symphony Services	13
Forrester Research Inc.	13, 34	Time Warner Inc.	26
Gilbane Inc.	30	T-Mobile USA	13
Glen Raven Inc.	46		
Google Inc.	6, 21		
Harrah's Entertainment	13		

United States Treasury	26
US Airways Inc.	10
USA.net Inc.	21
USInternetworking Inc.	21
Verizon	21
VMware Inc.	34

ADVERTISER INDEX

Accenture	31
agami Systems	27
AT&T	53
CA	C4
Cognos Inc.	19
CXO Media Inc.	4, 17, 33, 42, 49, 55
Dell Inc.	25
Fujitsu Computer Systems Corp.	15
Hewlett-Packard Co.	7
Informatica Corp.	16a
Insight Direct USA Inc.	2
Manpower Inc.	9
Microsoft Corp.	C2
Motorola Inc. (regional)	48a
NeuStar Inc.	5, 51
SAS	12
Sterling Commerce Inc.	11
SunGard Availability Services Inc.	32a
Tata Consultancy Services Ltd.	C3
TEKsystems	23
Telelogic AB	20
Verizon Wireless	29

CIO's e-Mail Newsletters

The Updated Management & Enterprise Information You Want

Delivered right to your desktop

It's the best way to keep one step ahead of the competition.

- ☒ **CIO Blogs**
This week's top blog postings.
- ☒ **CIO Careers**
Advice for your career plus job postings.
- ☒ **CIO Enterprise**
Enterprise-level technology information, news and tools.
- ☒ **CIO ERP**
A CIO's monthly guide for enterprise resource planning.
- ☒ **CIO Information Security**
Security information and news the CIO needs to know about.
- ☒ **CIO Insider**
Your guide to the latest from CIO.com.
- ☒ **CIO Leader**
Updates, insights and advice from CIO.com on hiring, firing and inspiring.
- ☒ **CIO Magazine Tech Poll**
Results of our quarterly survey, covering IT's overall health as well as spending and trends.
- ☒ **CIO News Watch**
The week's top news stories.
- ☒ **CIO Open Source**
A monthly peek at what's happening in the open source realm.
- ☒ **CIO Research Update**
Highlights of CIO's most recent IT research.
- ☒ **CIO SOA**
Your resource for service-oriented and enterprise architecture.
- ☒ **CIO Whitepapers**
Your guide to new and upcoming whitepapers.
- ☒ **CIO Wireless**
Providing information on emerging wireless technologies and infrastructure.

Sign up now for CIO's COMPLIMENTARY e-mail newsletters
www.cio.com/newsletters



Business Technology Leadership

5 Things I've Learned

THE VOICE OF EXPERIENCE * AS TOLD TO C.G. LYNCH

Alph Bingham,

cofounder of InnoCentive, an online marketplace that brings clients with problems together with scientists and researchers, says, Collaborate or die.

You can't corner the market on smarts.

Baseball Hall of Fame pitcher Satchel Paige once said that "None of us is as smart as all of us." It's been my experience that if you want to talk to smart people, you have to reach outside your core circle and your corporation. And what better way to reach other smart people than on the Web? Its characteristics of high bandwidth (lots of information per second) and "always on" are two key features that make it the globe's first truly useful collaboration tool.

Many heads are better than one.

Two people have a greater diversity of thought processes, training and experiences than one does. And three beats two. This is something I experienced during my days as a graduate student in organic chemistry

working with others in a research group to solve a problem. The Web is simply the only way to expose a challenge in a format that lets the challenge be found, mulled and solved. Not by one, two or even dozens of minds but by hundreds, thousands and hundreds of thousands of problem-solvers.

Diversity of thought matters.

Many of us have a tendency to seek answers to our challenges by confining our search to established expert resources, whether in business or academia. The result is that everyone seeks and receives the same "solutions" from the same sources. Paradoxically, qualifications can act as constraints to creativity. On the Web, novel answers frequently come from the fringes where there aren't accepted views on how to do things.

Openness on the Web is risky but necessary.

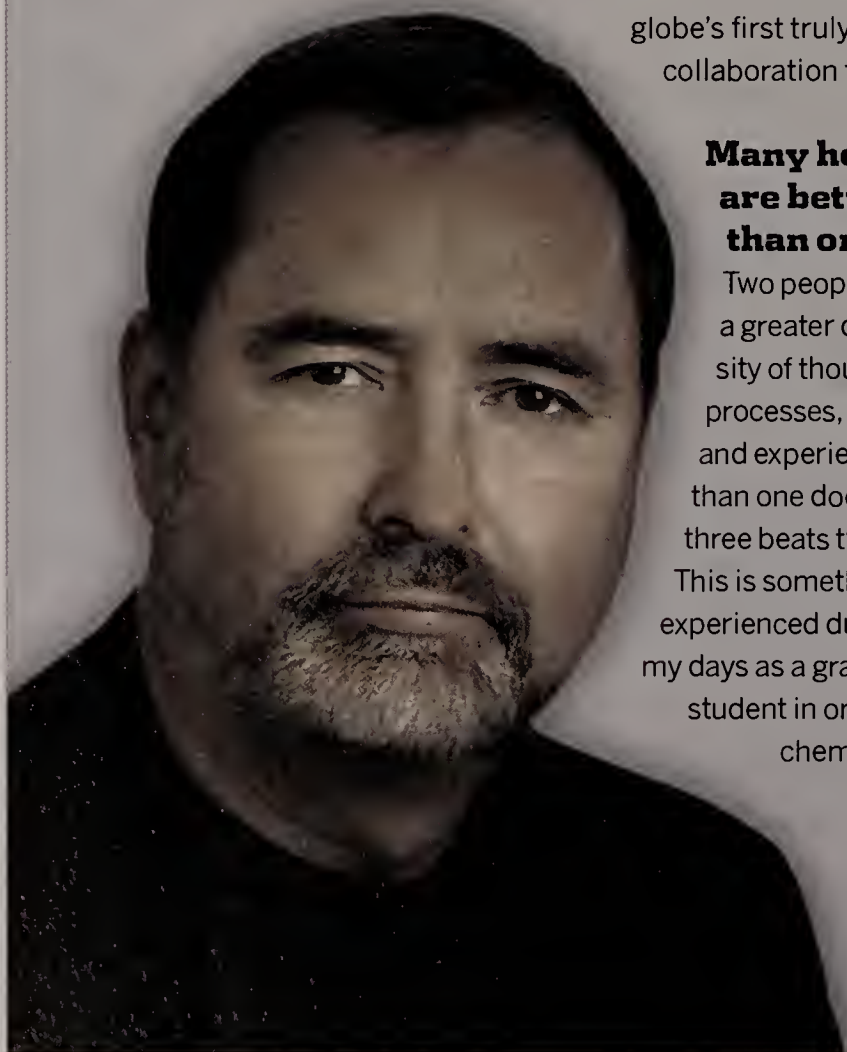
Effectively enabling others to solve a problem often requires some disclosure. And disclosed information can be employed by competitors. But, at the same

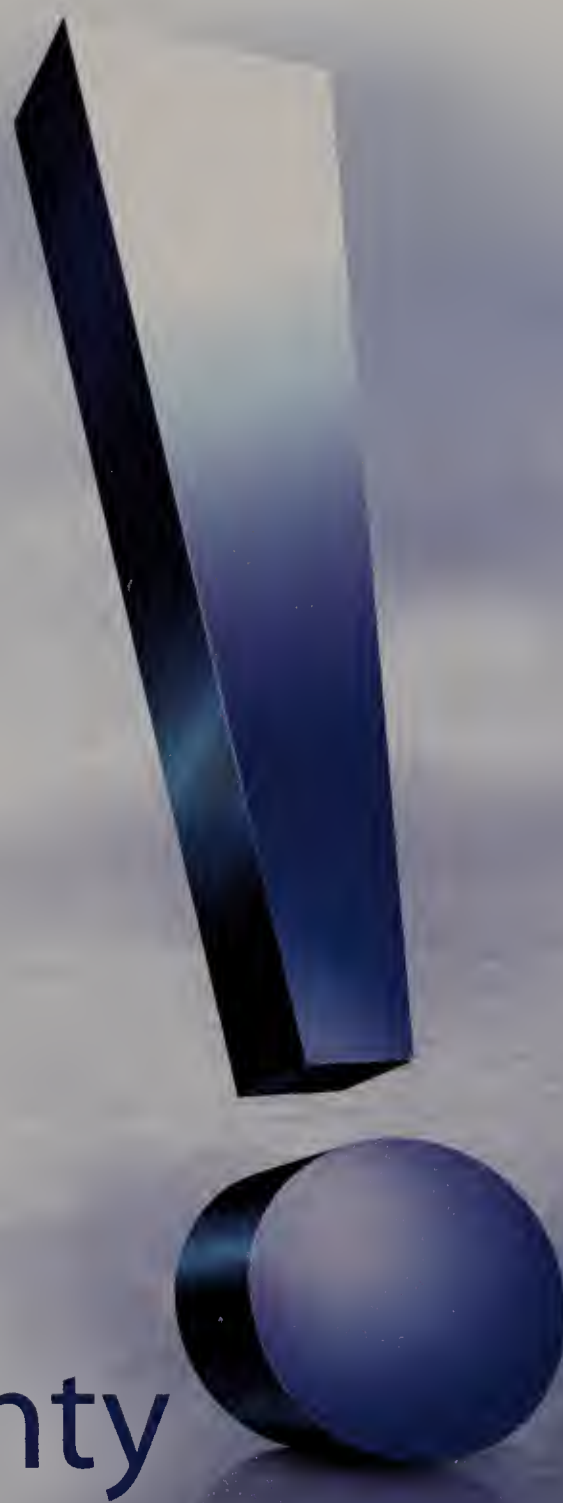
time, companies that develop cultures based on secrecy may ultimately hamper the all-important ability to collect new ideas outside of their environments. New tools in IT for exchanging and gathering information often seem riskier because they aren't familiar. While many of us may panic at the thought of sharing a credit card number online, we usually think nothing of giving that card to a perfect stranger and allowing them to disappear to some other part of the restaurant for several minutes at a time.

Open collaboration is here to stay.

New companies are being founded on the basis of sharing knowledge and power. These models often use Internet exchange as a global platform to attract and engage critical talent in a more efficient and timely manner irrespective of distance, time and even language. I believe online collaboration is becoming a business-critical practice for research and development. Move to open global collaboration or face the possibility of extinction.

You can send feedback to www.cio.com/article/120706.



A large, 3D, metallic-looking exclamation mark is positioned on the right side of the advertisement. It has a reflective surface and a shadow cast on the ground below it.

Promise what we deliver.

Deliver what we promise. That's

certainty

Critical situations. Ruthless competition. Unforgiving customers. Thankfully you can be absolutely sure of your IT solutions with Tata Consultancy Services (TCS). As one of the world's fastest growing technology and business solutions providers, TCS has built a reputation of delivery excellence based on world-class IT solutions that are on time, within budget and consistently deliver superior quality. So, it comes as no surprise that we pioneered the concept of the Global Network Delivery Model. Developed Innovation Labs and Solution Accelerators. Achieving a level of delivery excellence that provides greater value to our customers and is the industry benchmark. Enabling our clients to experience certainty.

TATA CONSULTANCY SERVICES

Experience certainty.

IT Services ■ Business Solutions ■ Outsourcing

To learn how your business can experience certainty, visit www.tcs.com

Why walk to meetings
when you can swagger with

CITVITTEOAA

(Communicating **IT** Value In Terms That Elicit **Oohs** And **Aahs**)

It all begins with a single view of your entire IT portfolio — a scenic overlook of your assets, resources, projects and services. From there, you can plan better, manage better. You can make informed decisions, smart trade-offs and wise investments. In short, you can budget, forecast and track with insight, accuracy and verve. Yes, verve. And that's everything you need to translate IT value into terms that bring nods of enlightenment from your business partners. To learn more, download the white paper "Generating Premium Returns on IT Investments" at ca.com/itg.